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LAW ENGINEERING
TESTING COMPANY

PRELIMINARY GROUND-WATER ASSESSMENT
FORMER TEXFI PLANT SITE
NEW BERN, NORTH CAROLINA
LETCO JOB NO.: J47286-1913A

FOR

COLE SCHOTZ

LAW ENGINEERING TESTING COMPANY
geotechnical, environmental & construction materials consultants
3301 ATLANTIC AVENUE
P.O. BOX 18288 • RALEIGH, NORTH CAROLINA 27619
(919) 876-0416

November 14, 1986

Cole Schotz
P. O. Box 800
Hackensack, NJ 07602-0800

Attention: Mr. Harold Tolchinsky

Subject: Preliminary Ground-Water Assessment
Former Texfi Plant Site
New Bern, North Carolina
LETCO: Job No.: J47286-1913A

Dear Mr. Tolchinsky:

The Law Engineering Testing Company (LETCo) has performed a preliminary ground-water assessment of the former Texfi Plant site in New Bern, North Carolina. This project was in accordance with your authorization on behalf of the Amital Spinning Corporation. Enclosed is a report of the preliminary ground-water assessment performed.

LETCo is pleased to have performed the assessment for Amital and looks forward to a continued association. Please, contact us should you have any questions.

Very truly yours,

LAW ENGINEERING TESTING COMPANY

J. Michael Watson

J. Michael Watson
Environmental Attorney

J. Allan Tice

J. Allan Tice, P.E.
Corporate Geotechnical Consultant

JMW:JAT/nb

Attachment

I. INTRODUCTION

Law Environmental Services, a Division of Law Engineering Testing Company (LETCo) performed a Preliminary Environmental Liability Assessment dated August 6, 1986 for the former Texfi textile manufacturing plant in New Bern, North Carolina. That assessment recommended that a preliminary ground-water assessment be performed at the site to determine if ground-water or soil contamination had occurred as a result of past manufacturing operations at the site. This report presents the findings of the preliminary ground-water assessment.

II. EVALUATION METHODS

The preliminary evaluation has included a sequence of well installation, sampling and analyses. The site topography did not clearly indicate a probable direction of ground-water flow. As an initial step, several inexpensive borings were hand augered and a PVC pipe inserted to maintain an open hole to allow checking of ground-water levels. Survey elevations were obtained for the ground surface and top of PVC pipe using an arbitrary site benchmark.

Based on the direction of ground-water flow indicated by these data, locations for five ground-water sampling wells were selected. The wells were installed as shown on the Well Record Sheets in Appendix A. Ground-water samples were taken from the five wells and from two of the hand auger locations on August 29, 1986. At the same time, elevation data were obtained on three of the initial monitoring wells. A subsequent review of the elevation data showed that the ground-water flow direction was, in fact, different from that originally estimated from the initial hand auger boring data. (It is believed that the initial hand auger data was affected by an extreme rainfall that occurred in New Bern just prior to the data collection.)

Four additional ground-water sampling wells were then installed at selected locations downgradient from areas of the plant where chemicals had been previously stored. Locations of all wells installed are shown on Drawing No. 1 in Appendix A. Well record forms, as required by the State, are also included in Appendix A for each well.

Ground-water samples were collected September 4 and September 18, 1986 from the additional wells after first removing four to five well volumes by bailing or using a submersible pump. The samples were placed in properly prepared sample containers furnished by the analytical laboratory, placed on ice, and transported to the laboratory on the day of sampling.

Chemical analyses were conducted by Industrial and Environmental Analysts, Inc. (IEA), in Raleigh, North Carolina. The parameters for analysis were selected to include the types of chemicals commonly used by textile plants, and to check for common contaminants listed by EPA in their list of 129 priority pollutants. Table 1 indicates the types of analyses performed on ground water from all the monitoring wells sampled. Table 2 specifies which individual metals and volatile organic carbon compounds were analyzed. Samples from the two hand auger borings were analyzed for selected parameters, but the results are not believed valid in view of the extreme rainfall and the lack of a surface seal around the temporary casings in these holes.

III. HYDROGEOLOGICAL CONSIDERATION

Available geological information for the New Bern-Craven County areas indicates that the first confined aquifer in the vicinity of the site is probably the Castle Hayne formation at a depth of 70 to 90 feet. Numerous domestic and commercial wells obtain water from this aquifer. Soils above the Castle Hayne are generally sandy with some clay and silt zones. While the presence of clay and silt would retard downward seepage, movement of organic contaminants is often not totally precluded by clay barriers.

The plant area is bounded by ditches on the west and south sides. It appears that some fill was placed in the southwest end of the plant area. Based on the ground-water elevation data, the general direction of ground-water flow is apparently toward the northeast. However, the data also indicate a ground-water mound that drains toward the adjacent perimeter ditches on the west and south.

To evaluate the potential for vertical migration of contamination, additional data, including the hydrostatic levels in the Castle Hayne aquifer and analyses of ground-water samples from various depths within the surficial aquifer, is necessary. This would require clusters of wells specifically screened and sealed at selected intervals. If it becomes necessary to drill into the Castle Hayne formation within an area of surficial contamination, special precautions and procedures will be required.

IV. GROUND-WATER CHEMICAL ANALYSES

The ground-water chemical analyses conducted to date indicate the presence of several chemicals on the EPA List of Priority Pollutants. All chemicals found above the analytical detection limits and the concentrations at which they were found have been listed in Table 3.

Copies of the IEA reports are included as Appendix B. Chlorinated solvents were found in the two wells, Well W-3A and Well W-4A, on the north side of the plant building. No EPA Priority Pollutant List volatile organics were detected in the two wells (W-1A and W-2A) downgradient (south) of the plant building.

From the data obtained, the primary concern related to contamination appears to be 1,1,1-trichloroethane (TCA). The data suggest that there may have been a past release of TCA on the north side of the plant building. A tank labeled 1,1,1-trichloroethane was observed on this side of the building during the initial site reconnaissance.

A much lower level of volatile organic compounds (VOC's) was found in well W-3A than in W-4A. VOC's were not detected in wells W-2A or W-1A. This suggests that the area of contaminant migration may still be totally within the plant property. The data are not sufficient to fully define a vertical or horizontal extent of migration or to draw conclusions or inferences on rates of migration.

V. REGULATORY CONSIDERATIONS

The North Carolina ground-water regulations utilize several classifications for ground-water. Water suitable for drinking water purposes and located within 20 feet of the ground surface is classified as GB and is considered a mixing zone and a recharge source for the surficial water table aquifer. Ground water suitable for drinking water purposes below 20 feet is classified GA. Until proven otherwise detection of contaminants in the upper 20 feet is considered as potential for contamination of the GA ground-waters below 20 feet. Permissible levels of substances are set by 15 NCAC 2L .0202 et seq. for class GA ground-water. Accordingly, the detection of a non-naturally occurring organic substance at any level is considered evidence of contamination.

Through Mr. Derr Leonhardt of the North Carolina Department of Commerce, there have been a number of telephone conversations with state personnel in the Department of Health and the Division of Environmental Management about the regulatory response to potential ground-water contamination at a site. For past releases, North Carolina's ground-water regulations establish a perimeter of compliance located at 500 feet from the release. If data are presented that show constituents in ground-water exceeding drinking water standards, the Division of Environmental Management's first step is to order a study. Such study would be conducted by the owner or responsible party to determine the horizontal and vertical extent of the contamination and prepare a remedial action plan. Remedial action can range from only monitoring at the perimeter of compliance, to clean-up of in-ground concentrations to meet applications standards.

Although the concentration permitted in ground-water varies for different constituents, Dr. Ted Taylor of the Department of Human Resources reports that maximum concentration criteria of less than ten parts per billion are typical for organic solvents such as TCA. Even if a study shows that no contamination is present at the perimeter of compliance, the NCDEM can order clean-up if, in its opinion, there is a reasonable risk that the contamination will reach the perimeter of compliance or if the contamination within the perimeter is equal to or greater than 50 percent of the unit cancer risk levels.

Factors such as the hydrogeology of the site, the potential for off-site users of the water, and the projected rate of contaminant migration are taken into account by NCDEM in reviewing individual cases.

VI. POTENTIAL CORRECTIVE ACTION

If a corrective action is required for the site, it appears that use of ground-water recovery and treatment with air stripping and/or carbon adsorption would be applicable. In air stripping, contaminated ground-water is pumped to the top of a vertical column and allowed to trickle down through the column while air is forced upward through the column. As the two streams pass each other, volatile organics are transferred from the water to the air which is vented to the atmosphere. High initial concentrations of contaminant usually require two stages to achieve the desired end concentration.

Depending on the amount of chemicals removed by the process, air emission controls can be required. A preliminary discussion with North Carolina Air Quality permit personnel suggests that controls may not be required for ground-water clean-up operations, but that a permit would be required. The need for emission controls will depend on the amount of organics being emitted per day and the expected duration of the operation.

Use of activated carbon filtration is another means of removing certain organics from ground-water. This method is generally more costly than air stripping. The spent carbon (in the system after use) must be disposed of as a hazardous waste.

Data and evaluation necessary to develop estimates of clean up times are beyond the scope of this initial assessment.

VII. POTENTIAL CORRECTIVE ACTION COSTS

Establishing a definitive cost estimate for Corrective Action at this site is not possible with the present information. The extent of the problem and the regulatory agency requirements are not yet known. To prepare a cost estimate would require a significant amount of engineering study. Based on our experience with similar projects, we estimate the cost of a study to define the horizontal and vertical extent of contamination and to develop a Corrective Action Plan could be in the range of $80,000 to $120,000. This assumes no extensive off-site exploration and relatively limited sources, and does not include permitting.

For a general estimate of the range of corrective costs, we have reviewed our experience with sites using air stripping to remove organic chemicals, and we have received information from Mr. Leonhardt on four similar sites in North Carolina that required ground-water recovery and treatment. Our experience suggests such costs can range from $500,000 to $1,000,000 or more. Mr. Leonhardt's information showed a range of $200,000 to $1,000,000. These estimates assume no extensive off-site contaminations, nominal annual operating costs for a period of less than 10 years and no extensive air emission controls. The projected clean up time and need for emission controls require additional data and evaluations.

Even if only a continued monitoring activity is required, designing and installing ground-water monitoring wells is estimated to cost $20,000 to $30,000 with annual costs for sampling, analyses, and reporting of about $10,000.

VIII. CONCLUSIONS

The available data indicate the presence of several organic compounds in the shallow ground-water at the site. The highest concentrations detected were for 1,1,1 trichloroethane (TCA). The extent of the contamination is not known, but two wells located 500 feet or more downgradient from the well with highest measured level of TCA did not indicate the presence of TCA. It must be emphasized that these conclusions are based on the results of a single (one time) sampling and analyses for a given well. Additional data are necessary to confirm the magnitude and extent of contaminants.

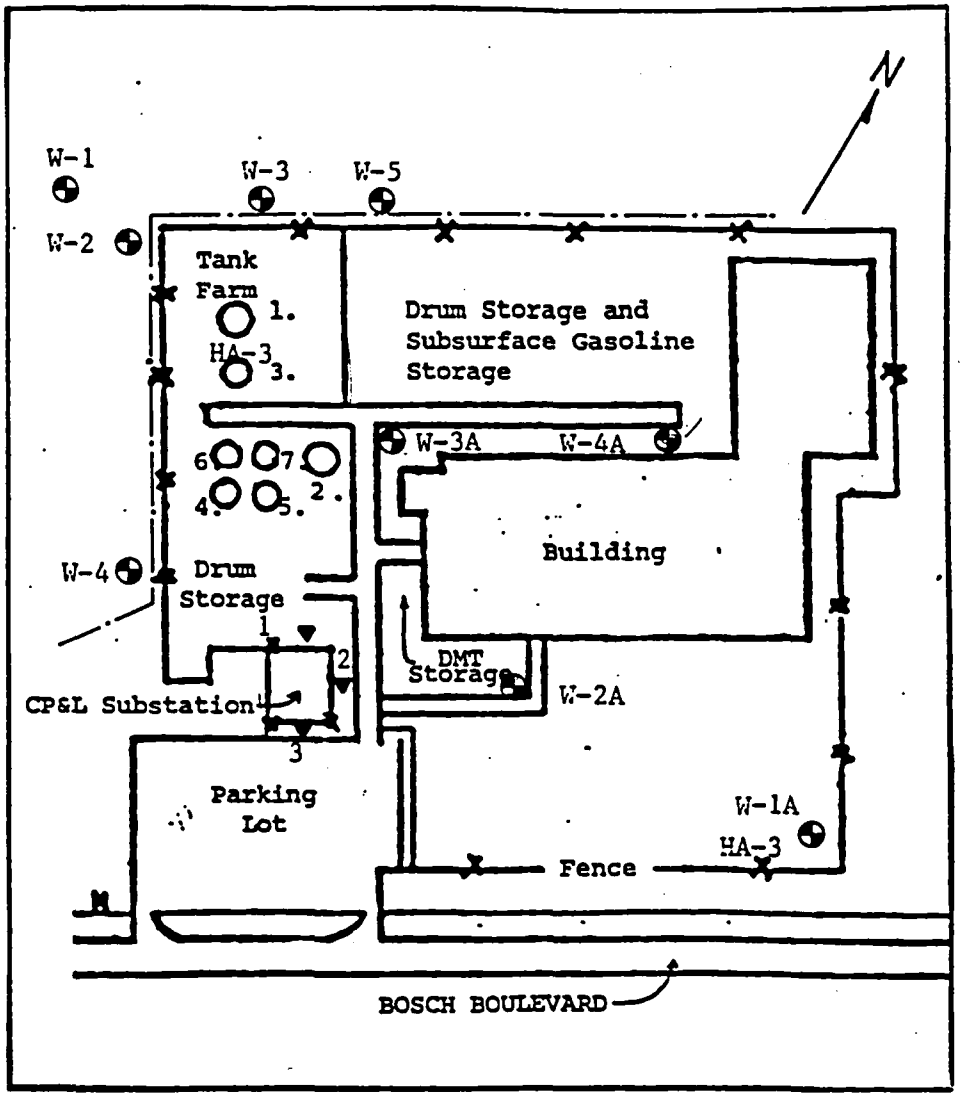
Published geologic information and local area experience indicate that the hydro-geologic setting of the site could result in lateral or vertical movement of the contamination.

From our general discussions with various state personnel, we believe that once the level of contamination is reported to the State Division of Environmental Management, a study would be ordered to determine the lateral and vertical extent of the contamination and to recommend a remedial approach. Our experience with such studies suggests that the cost would be on the order of $100,000 or more.

Available information on somewhat similar settings with corrective action suggest a cost range for clean-up could be $200,000 to $1,000,000 or more with most experience suggesting costs in excess of $500,000. Again, the actual costs are very site specific.

IX. RECOMMENDATIONS

We understand that Amital is pursuing an agreement with Texfi whereby Amital would conduct an assessment to confirm the need for and extent of corrective action. Texfi would then be responsible for implementing such corrective action. Therefore, we recommend a program be designed to further assess the contamination at the site. Once this program has been developed it is recommended that the actions to be undertaken be discussed with the NCDGM prior to initiating work.



Monitoring Well Location

Perimeter Ditch

Soil sample from top 12 inches

Hand auger boring with temporary casing

Scale approximately 1"=300'

AMITAL SPINNING CORPORATION	LAW ENVIRONMENTAL SERVICES MARIETTA, GEORGIA	SKETCH MAP OF PLANT AND EXTERIOR FACILITIES. PROPOSED AMITAL SPINNING CORPORATION PROPERTY ACQUISITION JOB NO. J1913A FIGURE 1

TABLE 1 MATRIX OF ANALYSES PERFORMED ON GROUND-WATER QUALITY SAMPLES COLLECTED FROM THE TEXFI TEXTILE MILL IN NEW BERN, NORTH CAROLINA

WELL 2	WELL 1A	WELL 2A	WELL 3A	WELL 4A
VOC	VOC	VOC	VOC	VOC
Metals	Metals	Metals	Metals	Metals
O & G	O & G	O & G	O & G	O & G
	Pest/PCB			
	B/N			
	A/E			
TOC				

VOC	Volatile Organic Carbon Compounds (listed in Table 2)
Metals	Dissolved Heavy Metals (listed in Table 2)
O & G	Residue Oil and Grease
Pest/PCB	Pesticides and PCB's in the Priority Pollutant List
B/N	Base/Neutral Extractables in the Priority Pollutant List
A/E	Acid Extractables in the Priority Pollutant List
TOC	Total Organic Carbon

TABLE 2 SPECIFIC METALS AND VOC COMPOUNDS ANALYZED

METALS

Dissolved Antimony	Dissolved Chromium	Dissolved Selenium
Dissolved Arsenic	Dissolved Copper	Dissolved Silver
Dissolved Barium	Dissolved Lead	Dissolved Thallium
Dissolved Beryllium	Dissolved Mercury	Dissolved Zinc
Dissolved Cadmium	Dissolved Nickel	

VOLATILE ORGANIC CARBON COMPOUNDS

Benzene	1,1-Dichloroethene
Bromodichloromethane	trans-1,2-Dichloroethene
Bromoform	1,2-Dichloropropane
Carbon tetrachloride	cis-1,3-Dichloropropane
Chlorobenzene	trans-1,3-Dichloropropane
Chloroethane	Ethyl benzene
2-Chloroethylvinyl ether	Methylene chloride
Chloroform	1,1,2,2-Tetrachloroethane
Chloromethane	Tetrachloroethene
Dibromochloromethane	Toluene
1,2-Dichlorobenzene	1,1,1-Trichloroethane
1,3-Dichlorbenzene	1,1,2-Trichloroethane
1,4-Dichlorobenzene	Trichloroethene
1,1-Dichloroethane	Trichlorofluoromethane
1,2-Dichloroethane	Vinyl chloride

TABLE 3 GROUND-WATER COMPONENTS DETECTED AT THE TEXFI TEXTILE MILL IN NEW BERN, NORTH CAROLINA

	WELL 2	WELL 1A	WELL 2A	WELL 3A	WELL 4A
			ORGANIC COMPOUNDS (mg/l)		
Chloroethane	BDL	BDL	BDL	0.062	BDL
1,1-Dichloroethane	BDL	BDL	BDL	0.14	240
1,1-Dichloroethene	BDL	BDL	BDL	0.017	16.
Methylene chloride	0.10	BDL	BDL	BDL	BDL
Tetrachloroethene	BDL	BDL	BDL	BDL	BDL
1,1,1-Trichloroethane	BDL	BDL	BDL	BDL	370
Total organic carbon	5.7	NA	NA	NA	NA
			DISSOLVED METALS (mg/l)		
Copper	BDL	0.02	BDL	0.02	BDL
Lead	BDL	0.007	BDL	BDL	BDL
Nickel	0.06	BDL	BDL	BDL	BDL
Selenium	BDL	0.005	0.016	BDL	BDL
Thallium	0.34	BDL	BDL	BDL	BDL
Zinc	0.02	BDL	BDL	0.01	BDL

BDL Below Detection Limit

NA Not Analyzed

APPENDIX A

WELL INSTALLATION RECORDS

LAW ENGINEERING TESTING COMPANY

NORTH CAROLINA DEPARTMENT OF NATURAL RESOURCES AND COMMUNITY DEVELOPMENT
DIVISION OF ENVIRONMENTAL MANAGEMENT - GROUNDWATER SECTION
P.O. BOX 27687 - RALEIGH, N.C. 27611, PHONE (919) 733-5083

FOR OFFICE USE ONLY
Quad. No. _____ Serial No. _____
Lat. _____ Long. _____ Pc _____
Minor Basin _____
Basin Code _____
Header Ent. _____ GW-1 Ent. _____

WELL CONSTRUCTION RECORD

DRILLING CONTRACTOR LAW ENGINEERING
DRILLER REGISTRATION NUMBER 332

STATE WELL CONSTRUCTION PERMIT NUMBER: 24-0267-WM-0100

1. WELL LOCATION: (Show sketch of the location below) WELL W-1A
Nearest Town: NEW BERN
County: CRAVEN
BOSCH RD
(Road, Community, or Subdivision and Lot No.)

2. OWNER AMITAL SPINNING CO.
ADDRESS P.O. BOX 31
(Street or Route No.)
HAWTHORNE N.J. 07507
City or Town State Zip Code

3. DATE DRILLED 9-2-86 USE OF WELL MONITORING
4. TOTAL DEPTH 18.5 CUTTINGS COLLECTED ☐ Yes ☒ No
5. DOES WELL REPLACE EXISTING WELL? ☐ Yes ☒ No
6. STATIC WATER LEVEL: 12 FT. ☐ above ☒ below TOP OF CASING.
TOP OF CASING IS 2 FT. ABOVE LAND SURFACE.
7. YIELD (gpm): N/A METHOD OF TEST
WATER ZONES (depth): 10 - 18.5'

8. CHLORINATION: Type N/A Amount

9. CASING:

	Depth From	Depth To	Diameter	Wall Thickness or Weight/Ft.	Material
	0	8	2"	Sch 40	PVC

10. GROUT:

	Depth From	Depth To	Material	Method
	0	6	Cement	pumped

12. SCREEN:

	Depth From	Depth To	Diameter	Slot Size	Material
	8	18	2"	.01 in.	PVC

13. GRAVEL PACK:

	Depth From	Depth To	Size	Material
	7	18	SAND	

14. REMARKS: BENTONITE PLUG 6-7'

Depth From	Depth To	DRILLING LOG Formation Description

If additional space is needed use back of form.

LOCATION SKETCH
(Show direction and distance from at least two State Roads, or other map reference points)

SEE ATTACHED MAP

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15 NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

SIGNATURE OF CONTRACTOR OR AGENT 11/13/86 DATE

GW-

NORTH CAROLINA DEPARTMENT OF NATURAL RESOURCES AND COMMUNITY DEVELOPMENT
DIVISION OF ENVIRONMENTAL MANAGEMENT - GROUNDWATER SECTION
P.O. BOX 27687 - RALEIGH, N.C. 27611, PHONE (919) 733-5083

FOR OFFICE USE ONLY

Quad. No. _____ Serial No. _____
Lat. _____ Long. _____ Pc _____
Minor Basin _____
Basin Code _____
Header Ent. _____ GW-1 Ent. _____

WELL CONSTRUCTION RECORD

DRILLING CONTRACTOR LAW ENGINEERING
DRILLER REGISTRATION NUMBER 332

STATE WELL CONSTRUCTION PERMIT NUMBER: 24-0267-WM-0100

1. WELL LOCATION: (Show sketch of the location below) WELL W-2A
Nearest Town: NEW BERN County: CRAVEN
BOSCH RD
(Road, Community, or Subdivision and Lot No.)

2. OWNER AMITAL SPINNING CO.
ADDRESS P.O. Box 31
(Street or Route No.)
HAWTHORNE N.J. 07507
City or Town State Zip Code

3. DATE DRILLED 9-2-86 USE OF WELL MONITORING
4. TOTAL DEPTH 18.5 CUTTINGS COLLECTED ☐ Yes ☒ No
5. DOES WELL REPLACE EXISTING WELL? ☐ Yes ☒ No
6. STATIC WATER LEVEL: 11.3 FT. ☒ above ☐ below TOP OF CASING.
TOP OF CASING IS 2 FT. ABOVE LAND SURFACE.
7. YIELD (gpm): N/A METHOD OF TEST _____
WATER ZONES (depth): 9 - 18.5

9. CHLORINATION: Type N/A Amount _____

10. CASING:

	Depth From	Depth To	Diameter	Wall Thickness or Weight/Ft.	Material
	0	8	2"	Sch 40	PVC

11. GROUT:

	Depth From	Depth To	Material	Method
	0	6	Cement	Pumped

12. SCREEN:

	Depth From	Depth To	Diameter	Slot Size	Material
	8	18	2"	.01 in.	PVC
				in.	
				in.	

13. GRAVEL PACK:

	Depth From	Depth To	Size	Material
	7	18	SAND	

14. REMARKS: BENTONITE PLUG 6-7'

DRILLING LOG

Depth From	Depth To	Formation Description

If additional space is needed use back of form.

LOCATION SKETCH
(Show direction and distance from at least two State Roads, or other map reference points)

SEE ATTACHED MAP

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15 NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

SIGNATURE OF CONTRACTOR OR AGENT 11/13/86 DATE

GW- i in l ivi ion f nvir n n eme well owner

NORTH CAROLINA DEPARTMENT OF NATURAL RESOURCES AND COMMUNITY DEVELOPMENT
DIVISION OF ENVIRONMENTAL MANAGEMENT - GROUNDWATER SECTION
P.O. BOX 27687 - RALEIGH, N.C. 27611, PHONE (919) 733-6083

FOR OFFICE USE ONLY
Quad. No. _____ Serial No. _____
Lat. _____ Long. _____ Pc _____
Minor Basin _____
Basin Code _____
Header Ent. _____ GW-1 Ent. _____

WELL CONSTRUCTION RECORD

DRILLING CONTRACTOR LAW ENGINEERING
DRILLER REGISTRATION NUMBER 332

STATE WELL CONSTRUCTION PERMIT NUMBER: 24-0267-WM-0100

1. WELL LOCATION: (Show sketch of the location below) WELL W-3A
Nearest Town: NEW BERN County: CRAVEN
BOSCH RD
(Road, Community, or Subdivision and Lot No.)

2. OWNER AMITAL SPINNING CO.
ADDRESS P.O. BOX 31
(Street or Route No.)
HAWTHORNE N.J. 07507
City or Town State Zip Code

3. DATE DRILLED 9-2-86 USE OF WELL MONITORING
4. TOTAL DEPTH 18.5 CUTTINGS COLLECTED ☐ Yes ☒ No
5. DOES WELL REPLACE EXISTING WELL? ☐ Yes ☒ No
6. STATIC WATER LEVEL: 8.5 FT. ☐ above ☒ below TOP OF CASING,
TOP OF CASING IS 2 FT. ABOVE LAND SURFACE.
7. YIELD (gpm): N/A METHOD OF TEST _____
ATER ZONES (depth): 6.5 - 18.5

9. CHLORINATION: Type N/A Amount _____

10. CASING:

	Depth From	To	Ft.	Diameter	Wall Thickness or Weight/Ft.	Material
	0	8		2"	Sch 40	PVC

11. GROUT:

	Depth From	To	Ft.	Material	Method
	0	6		Cement	Pumped

12. SCREEN:

	Depth From	To	Ft.	Diameter	Slot Size	Material
	8	18		2" in.	.01 in.	PVC
				in.	in.	
				in.	in.	

13. GRAVEL PACK:

	Depth From	To	Ft.	Size	Material
	7	18		SAND	

14. REMARKS: BENTONITE PLUG 6-7'

DRILLING LOG

Depth From	To	Formation Description

If additional space is needed use back of form.

LOCATION SKETCH
(Show direction and distance from at least two State Roads, or other map reference points)

SEE ATTACHED MAP

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15 NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

[signature] 11/13/86
SIGNATURE OF CONTRACTOR OR AGENT DATE

GW-1 Revised 11/84
Submit original to Division of Environmental Management and copy to well owner.

NORTH CAROLINA DEPARTMENT OF NATURAL RESOURCES AND COMMUNITY DEVELOPMENT
DIVISION OF ENVIRONMENTAL MANAGEMENT - GROUNDWATER SECTION
P.O. BOX 27687 - RALEIGH, N.C. 27611, PHONE (919) 733-6083

FOR OFFICE USE ONLY
Quad. No. _____ Serial No. _____
Lat. _____ Long. _____ Pc _____
Minor Basin _____
Basin Code _____
Header Ent. _____ GW-1 Ent. _____

WELL CONSTRUCTION RECORD

DRILLING CONTRACTOR LAW ENGINEERING
DRILLER REGISTRATION NUMBER 332

STATE WELL CONSTRUCTION PERMIT NUMBER: 24-0267-WM-0100

1. WELL LOCATION: (Show sketch of the location below) WELL W-4A
Nearest Town: NEW BERN
BOSCH RD
(Road, Community, or Subdivision and Lot No.)
County: CRAVEN

2. OWNER AMITAL SPINNING CO.
ADDRESS P.O. Box 31
(Street or Route No.)
HAWTHORNE N.J. 07507
City or Town State Zip Code

3. DATE DRILLED 9-2-86 USE OF WELL MONITORING
4. TOTAL DEPTH 18.5 CUTTINGS COLLECTED ☐ Yes ☒ No
5. DOES WELL REPLACE EXISTING WELL? ☐ Yes ☒ No
6. STATIC WATER LEVEL: 18.5 FT. ☐ above ☒ below TOP OF CASING,
TOP OF CASING IS 2 FT. ABOVE LAND SURFACE.
7. YIELD (gpm): N/A METHOD OF TEST _____
ATER ZONES (depth): _____
9. CHLORINATION: Type N/A Amount _____

Depth From	Depth To	DRILLING LOG Formation Description

If additional space is needed use back of form.

10. CASING:

	Depth From	Depth To	Diameter	Wall Thickness or Weight/Ft.	Material
	0	8	2"	Sch 40	PVC

11. GROUT:

	Depth From	Depth To	Material	Method
	0	6	Cement	Pumped

12. SCREEN:

	Depth From	Depth To	Diameter	Slot Size	Material
	8	18	2"	.01 in.	PVC

13. GRAVEL PACK:

	Depth From	Depth To	Size	Material
	7	18	SAND	

LOCATION SKETCH
(Show direction and distance from at least two State Roads, or other map reference points)

SEE ATTACHED MAP

14. REMARKS: BENTONITE PLUG 6-7'

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15 NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

SIGNATURE OF CONTRACTOR OR AGENT _____ DATE 11/13/86

Submit original to Division of Environmental Management and copy to well owner.

GW-

NORTH CAROLINA DEPARTMENT OF NATURAL RESOURCES AND COMMUNITY DEVELOPMENT
DIVISION OF ENVIRONMENTAL MANAGEMENT - GROUNDWATER SECTION
P.O. BOX 27687 - RALEIGH, N.C. 27611, PHONE (919) 733-5083

FOR OFFICE USE ONLY
Quad. No. _____ Serial No. _____
Lat. _____ Long. _____ Pc _____
Minor Basin _____
Basin Code _____
Header Ent. _____ GW-1 Ent. _____

WELL CONSTRUCTION RECORD

DRILLING CONTRACTOR LAW ENGINEERING
DRILLER REGISTRATION NUMBER 332

STATE WELL CONSTRUCTION PERMIT NUMBER: 24-0267-WM-0100

1. WELL LOCATION: (Show sketch of the location below) WELL W-1
Nearest Town: NEW BERN County: CRAVEN
BOSCH RD.
(Road, Community, or Subdivision and Lot No.)

2. OWNER AMITAL SPINNING Co.
ADDRESS P.O. Box 31
(Street or Route No.)
HAWTHORNE N.J. 07507
City or Town State Zip Code

3. DATE DRILLED 8/26/86 USE OF WELL TEMP. MONITORING
4. TOTAL DEPTH 18' CUTTINGS COLLECTED ☒ Yes ☐ No
5. DOES WELL REPLACE EXISTING WELL? ☐ Yes ☒ No
6. STATIC WATER LEVEL: 9.25 FT. ☐ above ☒ below TOP OF CASING.
TOP OF CASING IS 1.6 FT. ABOVE LAND SURFACE.
7. YIELD (gpm): N/A METHOD OF TEST _____
8. WATER ZONES (depth): _____
9. CHLORINATION: Type N/A Amount _____

Depth From	Depth To	DRILLING LOG Formation Description
0	9	BROWN FI SA CLAY
9	18	Gray Clayey fine-med SAN

If additional space is needed use back of form.

10. CASING:

	Depth From	Depth To	Diameter	Wall Thickness or Weight/Ft.	Material
	0	8	2	Sch 40	PVC

11. GROUT:

	Depth From	Depth To	Material	Method
	0	96	Cement	Pump
BENTONITE	6 96	7 98	BENTONITE	PELLETS

12. SCREEN:

	Depth From	Depth To	Diameter	Slot Size	Material
	8	18'	2 in.	.015 in.	PVC
			in.	in.	
			in.	in.	

13. GRAVEL PACK:

	Depth From	Depth To	Size	Material
	7	18	SAND	

LOCATION SKETCH
(Show direction and distance from at least two State Roads, or other map reference points)
SEE ATTACHED MAP

14. REMARKS: TEMPORARY WELL - TO BE ABANDONED WITHIN 30 DAYS

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15 NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

[signature] 9/30/86
SIGNATURE OF CONTRACTOR OR AGENT DATE

Final to Division of Environmental Management and copy to well owner.

NORTH CAROLINA DEPARTMENT OF NATURAL RESOURCES AND COMMUNITY DEVELOPMENT
DIVISION OF ENVIRONMENTAL MANAGEMENT - GROUNDWATER SECTION
P.O. BOX 27687 - RALEIGH, N.C. 27611, PHONE (919) 733-5083

FOR OFFICE USE ONLY
Quad. No. _____ Serial No. _____
Lat. _____ Long. _____ Pc _____
Minor Basin _____
Basin Code _____
Header Ent. _____ GW-1 Ent. _____

WELL CONSTRUCTION RECORD

DRILLING CONTRACTOR: LAW ENGINEERING
DRILLER REGISTRATION NUMBER: 332
STATE WELL CONSTRUCTION PERMIT NUMBER: 24-0267-WM-0100

WELL LOCATION: (Show sketch of the location below) Well W-2
Nearest Town: NEW BERN
County: CRAVEN
BOSCH RD.
(Road, Community, or Subdivision and Lot No.)
OWNER: AMITAL SPINNING Co.
ADDRESS: P.O. Box 31 (Street or Route No.)
HAWTHORNE N.J. 07507
City or Town State Zip Code

DATE DRILLED: 8/26/86 USE OF WELL: TEMP. MONITORING
TOTAL DEPTH: 18' CUTTINGS COLLECTED: ☒ Yes ☐ No
DOES WELL REPLACE EXISTING WELL? ☐ Yes ☒ No
STATIC WATER LEVEL: 8.7 FT. ☐ above ☒ below TOP OF CASING,
TOP OF CASING IS 0.6 FT. ABOVE LAND SURFACE.
YIELD (gpm): N/A METHOD OF TEST _____
WATER ZONES (depth): _____
CHLORINATION: Type N/A Amount _____

Depth From	Depth To	DRILLING LOG Formation Description
0	9	Brown silty to fine sandy CLAY
9	18	Gray fine sandy clay to very clayey fine SAND

If additional space is needed use back of form.

10. CASING:

	Depth From	Depth To	Diameter	Wall Thickness or Weight/Ft.	Material
	0	8	2	Sch 40	PVC

11. GROUT:

	Depth From	Depth To	Material	Method
	0	6	Cement	Pump
BENTONITE	6	7	BENTONITE	PELLETS

12. SCREEN:

Depth From	Depth To	Diameter	Slot Size	Material
8	18'	2 in.	.015 in.	PVC
		in.	in.	
		in.	in.	

13. GRAVEL PACK:

Depth From	Depth To	Size	Material
7	18	SAND	

LOCATION SKETCH
(Show direction and distance from at least two State Roads, or other map reference points)
SEE ATTACHED MAP

14. REMARKS: TEMPORARY WELL - TO BE ABANDONED WITHIN 30 DAYS

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15 NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

SIGNATURE OF CONTRACTOR OR AGENT: [signature] DATE: 9/30/86

vi mental Mana ment and cop to well owner.

NORTH CAROLINA DEPARTMENT OF NATURAL RESOURCES AND COMMUNITY DEVELOPMENT
DIVISION OF ENVIRONMENTAL MANAGEMENT – GROUNDWATER SECTION
P.O. BOX 27687 – RALEIGH, N.C. 27611, PHONE (919) 733-5083

FOR OFFICE USE ONLY	
Quad. No.	Serial No.
Lat.	Long. / Pc
Minor Basin	
Basin Code	
Header Ent.	GW-1 Ent.

WELL CONSTRUCTION RECORD

DRILLING CONTRACTOR: LAW ENGINEERING
DRILLER REGISTRATION NUMBER: 332

STATE WELL CONSTRUCTION PERMIT NUMBER: ZA-0267-WM-0100

Well W-3

1. WELL LOCATION: (Show sketch of the location below)
Nearest Town: NEW BERN
BOSCH RD.
(Road, Community, or Subdivision and Lot No.)
County: CRAVEN

2. OWNER: AMITAL SPINNING Co.
ADDRESS: P.O. Box 31
(Street or Route No.)
HAWTHORNE N.J. 07507
City or Town State Zip Code

3. DATE DRILLED: 8/26/86 USE OF WELL: TEMP. MONITORING
4. TOTAL DEPTH: 18' CUTTINGS COLLECTED: ☒ Yes ☐ No
5. DOES WELL REPLACE EXISTING WELL? ☐ Yes ☒ No
6. STATIC WATER LEVEL: 9.1 FT. ☐ above ☒ below TOP OF CASING,
TOP OF CASING IS 2 FT. ABOVE LAND SURFACE.
7. YIELD (gpm): N/A METHOD OF TEST
WATER ZONES (depth):
9. CHLORINATION: Type N/A Amount

Depth From	Depth To	DRILLING LOG Formation Description
0	9	Gray to brown Silty to fine Sandy CLAY
9	18	Gray fine Sandy CLAY

If additional space is needed use back of form.

10. CASING:

	Depth From	Depth To	Diameter	Wall Thickness or Weight/Ft.	Material
	0	8	2	Sch 40	PVC

11. GROUT:

	Depth From	Depth To	Material	Method
	0	6	Cement	Pump
BENTONITE	6	7	BENTONITE	PELLETS

12. SCREEN:

Depth From	Depth To	Diameter	Slot Size	Material
8	18'	2 in.	.015 in.	PVC

13. GRAVEL PACK:

Depth From	Depth To	Size	Material
7	18	SAND	

LOCATION SKETCH
(Show direction and distance from at least two State Roads, or other map reference points)
SEE ATTACHED MAP

14. REMARKS: TEMPORARY WELL – TO BE ABANDONED WITHIN 30 DAYS

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15 NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

SIGNATURE OF CONTRACTOR OR AGENT: [signature] DATE: 9/29/86

Submit original to Division of Environmental Management and copy to well owner.

NORTH CAROLINA DEPARTMENT OF NATURAL RESOURCES AND COMMUNITY DEVELOPMENT
DIVISION OF ENVIRONMENTAL MANAGEMENT - GROUNDWATER SECTION
P.O. BOX 27687 - RALEIGH, N.C. 27611, PHONE (919) 733-5083

FOR OFFICE USE ONLY
Quad. No. _____ Serial No. _____
Lat. _____ Long. _____ Pc _____
Minor Basin _____
Basin Code _____
Header Ent. _____ GW-1 Ent. _____

WELL CONSTRUCTION RECORD

DRILLING CONTRACTOR: LAW ENGINEERING
DRILLER REGISTRATION NUMBER: 332

STATE WELL CONSTRUCTION PERMIT NUMBER: 24-0267-WM-0100

WELL W-4

WELL LOCATION: (Show sketch of the location below)
Nearest Town: NEW BERN
BOSCH RD.
(Road, Community, or Subdivision and Lot No.)

County: CRAVEN

OWNER: AMITAL SPINNING Co.
ADDRESS: P.O. Box 31
(Street or Route No.)
HAWTHORNE N.J. 07507
City or Town State Zip Code

DATE DRILLED: 8/26/86 USE OF WELL: TEMP. MONITORING
TOTAL DEPTH: 18' CUTTINGS COLLECTED: ☒ Yes ☐ No
DOES WELL REPLACE EXISTING WELL? ☐ Yes ☒ No
STATIC WATER LEVEL: 11.1 FT. ☐ above ☒ below TOP OF CASING.
TOP OF CASING IS 2' FT. ABOVE LAND SURFACE.
YIELD (gpm): N/A METHOD OF TEST _____
WATER ZONES (depth): _____

CHLORINATION: Type N/A Amount _____

Depth From	Depth To	DRILLING LOG Formation Description
0	4	Lt. gray Fine Sandy CLAY
4	9	Brown Fine Sandy CLAY
9	12	Gray very clayey Fine to medium SAND
12	18	Gray fine Sandy CLAY

If additional space is needed use back of form.

10. CASING:

	Depth From	Depth To	Diameter	Wall Thickness or Weight/Ft.	Material
	0	8	2	Sch 40	PVC

11. GROUT:

	Depth From	Depth To	Material	Method
	0	6	Cement	Pump
BENTONITE	6	7	BENTONITE	PELLETS

12. SCREEN:

	Depth From	Depth To	Diameter	Slot Size	Material
	8	18'	2 in.	.015 in.	PVC
			in.	in.	
			in.	in.	

13. GRAVEL PACK:

	Depth From	Depth To	Size	Material
	7	18	SAND	

LOCATION SKETCH
(Show direction and distance from at least two State Roads, or other map reference points)

SEE ATTACHED MAP

14. REMARKS: TEMPORARY WELL - TO BE ABANDONED WITHIN 30 DAYS

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15 NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

SIGNATURE OF CONTRACTOR OR AGENT: [signature] DATE: 9/29/86

Submit original to Division of Environmental Management and copy to well owner.

NORTH CAROLINA DEPARTMENT OF NATURAL RESOURCES AND COMMUNITY DEVELOPMENT
DIVISION OF ENVIRONMENTAL MANAGEMENT - GROUNDWATER SECTION
P.O. BOX 27687 - RALEIGH, N.C. 27611, PHONE (919) 733-5083

FOR OFFICE USE ONLY
Quad. No. _____ Serial No. _____
Lat. _____ Long. _____ Pc _____
Minor Basin _____
Basin Code _____
Header Ent. _____ GW-1 Ent. _____

WELL CONSTRUCTION RECORD

DRILLING CONTRACTOR LAW ENGINEERING
DRILLER REGISTRATION NUMBER 332

STATE WELL CONSTRUCTION PERMIT NUMBER: 24-0267-WM-0100

1. WELL LOCATION: (Show sketch of the location below) WELL W-5
Nearest Town: NEW BERN County: CRAVEN
BOSCH RD.
(Road, Community, or Subdivision and Lot No.)

2. OWNER AMITAL SPINNING Co.
ADDRESS P.O. Box 31
(Street or Route No.)
HAWTHORNE N.J. 07507
City or Town State Zip Code

3. DATE DRILLED 8/26/86 USE OF WELL TEMP. MONITORING
4. TOTAL DEPTH 18' CUTTINGS COLLECTED ☒ Yes ☐ No
5. DOES WELL REPLACE EXISTING WELL? ☐ Yes ☒ No
6. STATIC WATER LEVEL: 9.1 FT. ☐ above ☒ below TOP OF CASING,
TOP OF CASING IS 2 FT. ABOVE LAND SURFACE.
7. YIELD (gpm): N/A METHOD OF TEST _____
8. WATER ZONES (depth): _____
9. CHLORINATION: Type N/A Amount _____

Depth From	Depth To	DRILLING LOG Formation Description
0	5	GRAY AND BROWN Silty CLAY
5	14	BROWN FINE SANDY CLAY
14	18	BROWN AND GRAY Silty to Clayey Fine SAND

If additional space is needed use back of form.

10. CASING:

	Depth From	Depth To	Diameter	Wall Thickness or Weight/Ft.	Material
	0	8	2	Sch 40	PVC

11. GROUT:

	Depth From	Depth To	Material	Method
	0	6	Cement	Pump
BENTONITE	6	7	BENTONITE	PELLETS

12. SCREEN:

Depth From	Depth To	Diameter	Slot Size	Material
8	18'	2 in.	.015 in.	PVC
		in.	in.	
		in.	in.	

13. GRAVEL PACK:

Depth From	Depth To	Size	Material
7	18	SAND	

LOCATION SKETCH
(Show direction and distance from at least two State Roads or other map reference points)
SEE ATTACHED MAP

14. REMARKS: TEMPORARY WELL - TO BE ABANDONED WITHIN 30 DAYS

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15 NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

SIGNATURE OF CONTRACTOR OR AGENT 9/29/86 DATE

Submit original to Division of Environmental Management and copy to well own

APPENDIX B
LABORATORY
REPORTS

LAW ENGINEERING
TESTING COMPANY

Industrial & Environmental Analysts, Inc.
P.O. Box 12846 • Research Triangle Park, NC 27709 • 919-467-9919

RECEIVED BY
SEP 23 1986
LAW ENGINEERING

September 19, 1986

Mr. Al Tice
Law Engineering Testing Company
3301 Winton Road
P.O. Box 18288
Raleigh, NC 27619

Reference: IEA Report No. 287-28

Dear Mr. Tice:

Transmitted herewith are the results of analyses on two samples submitted to our laboratory on September 18, 1986.

Please see the enclosed reports for your results.

Very truly yours,

INDUSTRIAL & ENVIRONMENTAL ANALYSTS, INC.

Joseph B. Adamovic

Joseph B. Adamovic
Senior Chemist

JBA/jcl

Industrial & Environmental Analysts, Inc.
P.O. Box 12846 • Research Triangle Park, NC 27709 • 919-467-9919

September 5, 1986

RECEIVED BY
SEP 8 1986
LAW ENGINEERING

Al Tice
Law Engineering Testing Company
3301 Winton Road
P.O. Box 18288
Raleigh, NC 27619

Reference: IEA Report No. 287-25

Dear Mr. Tice:

Transmitted herewith are the results of analyses on three samples submitted to our laboratory on August 29, 1986.

		Well W-2
Oil & Grease	mg/L	<2.0
Arsenic	mg/L	<0.005
Barium	mg/L	<0.2
Cadmium	mg/L	<0.01
Chromium	mg/L	<0.03
Lead	mg/L	<0.005
Mercury	mg/L	<0.0005
Selenium	mg/L	<0.005
Silver	mg/L	<0.05
Thallium	mg/L	0.34
Beryllium	mg/L	<0.01
Zinc	mg/L	0.02
Copper	mg/L	<0.02
Antimony	mg/L	<0.2
Nickel	mg/L	0.06

Please see the enclosed reports for your volatile reports.

Very truly yours,

INDUSTRIAL & ENVIRONMENTAL ANALYSTS, INC.

Joseph B. Adamovic
Senior Chemist

JBA/jcl

		Well W-2	HA-3	HA-5
Total Organic Carbon	mg/L	5.7*	5.6*	5500*

*This value indicates the need for more detailed analysis to identify organic compounds.

Industrial & Environmental Analysts, Inc.
P.O. Box 12846 • Research Triangle Park, NC 27709 • 919-467-9919

September 16, 1986

RECEIVED
SEP 17 1986

Mr. Al Tice
Law Engineering Testing Company
3301 Winton Road
P.O. Box 18288
Raleigh, NC 27619

Reference: IEA Report No. 287-26

Dear Mr. Tice:

Transmitted herewith are the results of analyses on four samples submitted to our laboratory on September 4, 1986. The samples were filtered through a 0.45 micron filter prior to analysis.

Please see the enclosed reports for your results.

Very truly yours,

INDUSTRIAL & ENVIRONMENTAL ANALYSTS, INC.

Joseph B. Adamovic

Joseph B. Adamovic
Senior Chemist

JBA/jcl

		W-1A	W-2A	W-3A	W-4A
Oil & Grease	mg/L	<5.0	<5.0	<5.0	<5.0
Arsenic	mg/L	<0.005	<0.005	<0.005	<0.005
Barium	mg/L	<0.2	<0.2	<0.2	<0.2
Cadmium	mg/L	<0.01	<0.01	<0.01	<0.01
Chromium	mg/L	<0.03	<0.03	<0.03	<<0.03
Lead	mg/L	0.007	<0.005	<0.005	<0.005
Selenium	mg/L	0.005	0.016	<0.005	<0.005
Silver	mg/L	<0.05	<0.05	<0.05	<0.05
Mercury	mg/L	<0.0005	<0.0005	<0.0005	<0.0005
Thallium	mg/L	<0.05	<0.05	<0.05	<0.05
Beryllium	mg/L	<0.01	<0.01	<0.01	<0.01
Zinc	mg/L	<0.01	<0.01	0.01	<0.01
Antimony	mg/L	<0.2	<0.2	<0.2	<0.2
Nickel	mg/L	<0.03	<0.03	<0.03	<0.03
Copper	mg/L	0.02	<0.02	0.02	<0.02

Industrial & Environmental Analysts, Inc.
P.O. Box 12846 • Research Triangle Park, NC 27709 • 919-467-9919

September 29, 1986

RECEIVED BY
OCT 1 1986
LAW ENGINEERING

Al Tice
Law Engineering Testing Company
3301 Winton Road
P.O. Box 18288
Raleigh, NC 27619

Reference: IEA Report No. 287-29

Dear Mr. Tice:

Transmitted herewith are the results of analyses on three samples submitted to our laboratory on September 19, 1986.

	Total PCB mg/Kg
#1	<1.0
#2	<1.0
#3	<1.1

Very truly yours,

INDUSTRIAL & ENVIRONMENTAL ANALYSTS, INC.

Joseph B. Adamovic
Senior Chemist

JBA/jcl

Comments

BDL - BELOW DETECTION LIMIT

GC/MS Purgeables

IEA Sample No. 287028 1

Client Identification W-1A

Date Analyzed September 18, 1986 **By** Daniels

Number	Compound	Detection Limit µg/L	Results Concentration µg/L
1	BENZENE	10	BDL
2	BROMODICHLOROMETHANE	10	BDL
3	BROMOFORM	10	BDL
4	BROMOMETHANE	10	BDL
5	CARBON TETRACHLORIDE	10	BDL
6	CHLOROBENZENE	10	BDL
7	CHLOROETHANE	10	BDL
8	2-CHLOROETHYLVINYL ETHER	10	BDL
9	CHLOROFORM	10	BDL
10	CHLOROMETHANE	10	BDL
11	DIBROMOCHLOROMETHANE	10	BDL
12	1,2-DICHLOROBENZENE	10	BDL
13	1,3-DICHLOROBENZENE	10	BDL
14	1,4-DICHLOROBENZENE	10	BDL
15	1,1-DICHLOROETHANE	10	BDL
16	1,2-DICHLOROETHANE	10	BDL
17	1,1-DICHLOROETHENE	10	BDL
18	trans-1,2-DICHLOROETHENE	10	BDL
19	1,2-DICHLOROPROPANE	10	BDL
20	cis-1,3-DICHLOROPROPENE	10	BDL
21	trans-1,3-DICHLOROPROPENE	10	BDL
22	ETHYL BENZENE	10	BDL
23	METHYLENE CHLORIDE	10	BDL
24	1,1,2,2-TETRACHLOROETHANE	10	BDL
25	TETRACHLOROETHENE	10	BDL
26	TOLUENE	10	BDL
27	1,1,1-TRICHLOROETHANE	10	BDL
28	1,1,2-TRICHLOROETHANE	10	BDL
29	TRICHLOROETHENE	10	BDL
30	TRICHLOROFLUOROMETHANE	10	BDL
31	VINYL CHLORIDE	10	BDL

Comments | BDL - BELOW DETECTION LIMIT

GC/MS PCB/Pesticides

IEA Sample No. 287026 1
Client Identification W-1A
Date Extracted September 10, 1986 **Date Analyzed** September 11, 1986
By King

Number	Compound	Detection Limit µg/L	Results Concentration µg/L
1	ALDRIN	40	BDL
2	Alpha - BHC	40	BDL
3	Beta - BHC	40	BDL
4	Delta - BHC	40	BDL
5	Gamma - BHC	40	BDL
6	CHLORDANE	40	BDL
7	4,4'-DDD	40	BDL
8	4,4'-DDE	40	BDL
9	4,4'-DDT	40	BDL
10	DIELDRIN	40	BDL
11	ENDOSULFAN I	40	BDL
12	ENDOSULFAN II	40	BDL
13	ENDOSULFAN SULFATE	40	BDL
14	ENDRIN	40	BDL
15	ENDRIN ALDEHYDE	40	BDL
16	HEPTACHLOR	40	BDL
17	HEPTACHLOR EPOXIDE	40	BDL
18	TOXAPHENE	40	BDL
19	PCB 1016	40	BDL
20	PCB 1221	40	BDL
21	PCB 1232	40	BDL
22	PCB 1242	40	BDL
23	PCB 1248	40	BDL
24	PCB 1254	40	BDL
25	PCB 1260	40	BDL

Comments

BDL - BELOW DETECTION LIMIT

GC/MS Acid Extractables

IEA Sample No. 287026 1
Client Identification W-1A
Date Extracted September 10, 1986 **Date Analyzed** September 11,
By King

Number	Compound	Detection Limit µg/L	Results Concentration µg/L
1	4-CHLORO-3-METHYLPHENOL	100	BDL
2	2-CHLOROPHENOL	100	BDL
3	2,4-DICHLOROPHENOL	100	BDL
4	2,4-DIMETHYLPHENOL	100	BDL
5	2,4-DINITROPHENOL	1000	BDL
6	2-METHYL-4,6-DINITROPHENOL	1000	BDL
7	2-NITROPHENOL	100	BDL
8	4-NITROPHENOL	100	BDL
9	PENTACHLOROPHENOL	100	BDL
10	PHENOL	100	BDL
11	2,4,6-TRICHLOROPHENOL	100	BDL

Comments | BDL - BELOW DETECTION LIMIT
Phthalates present but not quantitated due to sample matrix interferences.
Please see Chromato gram.

IEA Sample No. 287026 1 **Client Identification** W-1A

Date Extracted September 10, **Date Analyzed** September 11, 1986

By King

GS/MS Base/Neutral Extractables

Number	Compound	Detection Limit µg/L	Concentration µg/L
1	ACENAPHTHENE	100	BDL
2	ACENAPHTHYLENE	40	BDL
3	ANTHRACENE	40	BDL
4	BENZIDINE	40	BDL
5	BENZO (a) ANTHRACENE	40	BDL
6	BENZO (a) PYRENE	40	BDL
7	BENZO (b) FLUORANTHENE	40	BDL
8	BENZO (ghi) PERYLENE	100	BDL
9	BENZO (k) FLUORANTHENE	40	BDL
10	BIS (2-CHLOROETHOXY) METHANE	40	BDL
11	BIS (2-CHLOROETHYL) ETHER	40	BDL
12	BIS (2-CHLOROISOPROPYL) ETHER	40	BDL
13	BIS (2-ETHYLHEXYL) PHTHALATE	40	BDL
14	4-BROMOPHENYL PHENYL ETHER	40	BDL
15	BENZYL BUTYL PHTHALATE	40	BDL
16	2-CHLORONAPHTHALENE	40	BDL
17	4-CHLOROPHENYL PHENYL ETHER	40	BDL
18	CHRYSENE	40	BDL
19	DIBENZO (a,h) ANTHRACENE	40	BDL
20	1,2-DICHLOROBENZENE	40	BDL
21	1,3-DICHLOROBENZENE	40	BDL
22	1,4-DICHLOROBENZENE	40	BDL
23	3,3'-DICHLOROBENZIDINE	40	BDL
24	DIETHYL PHTHALATE	40	BDL
25	DIMETHYL PHTHALATE	40	BDL
26	DI-N-BUTYL PHTHALATE	40	BDL
27	2,4-DINITROTOLUENE	40	BDL
28	2,6-DINITROTOLUENE	40	BDL
29	DI-N-OCTYLPHTHALATE	40	BDL
30	FLUORANTHENE	40	BDL
31	FLUORENE	40	BDL
32	HEXACHLOROBENZENE	40	BDL
33	HEXACHLOROBUTADIENE	40	BDL
34	HEXACHLOROCYCLOPENTADIENE	40	BDL
35	HEXACHLOROETHANE	40	BDL
36	INDENO(1,2,3-cd)PYRENE	100	BDL
37	ISOPHORONE	40	BDL
38	NAPHTHALENE	40	BDL
39	NITROBENZENE	40	BDL
40	N-NITROSODIMETHYLAMINE	40	BDL
41	N-NITROSO-DI-N- PROPYLAMINE	40	BDL
42	N-NITROSODIPHENYLAMINE	40	BDL
43	PHENANTHRENE	40	BDL
44	PYRENE	40	BDL
45	1,2,4,-TRICHLOROBENZENE	40	BDL

Comments

BDL - BELOW DETECTION LIMIT

GC/MS Purgeables

IEA Sample No. 287026 2

Client Identification W-2A

Date Analyzed September 10, 1986 **By** King

Number	Compound	Detection Limit µg/L	Results Concentration µg/L
1	BENZENE	10	BDL
2	BROMODICHLOROMETHANE	10	BDL
3	BROMOFORM	10	BDL
4	BROMOMETHANE	10	BDL
5	CARBON TETRACHLORIDE	10	BDL
6	CHLOROBENZENE	10	BDL
7	CHLOROETHANE	10	BDL
8	2-CHLOROETHYLVINYL ETHER	10	BDL
9	CHLOROFORM	10	BDL
10	CHLOROMETHANE	10	BDL
11	DIBROMOCHLOROMETHANE	10	BDL
12	1,2-DICHLOROBENZENE	10	BDL
13	1,3-DICHLOROBENZENE	10	BDL
14	1,4-DICHLOROBENZENE	10	BDL
15	1,1-DICHLOROETHANE	10	BDL
16	1,2-DICHLOROETHANE	10	BDL
17	1,1-DICHLOROETHENE	10	BDL
18	trans-1,2-DICHLOROETHENE	10	BDL
19	1,2-DICHLOROPROPANE	10	BDL
20	cis-1,3-DICHLOROPROPENE	10	BDL
21	trans-1,3-DICHLOROPROPENE	10	BDL
22	ETHYL BENZENE	10	BDL
23	METHYLENE CHLORIDE	10	BDL
24	1,1,2,2-TETRACHLOROETHANE	10	BDL
25	TETRACHLOROETHENE	10	BDL
26	TOLUENE	10	BDL
27	1,1,1-TRICHLOROETHANE	10	BDL
28	1,1,2-TRICHLOROETHANE	10	BDL
29	TRICHLOROETHENE	10	BDL
30	TRICHLOROFLUOROMETHANE	10	BDL
31	VINYL CHLORIDE	10	BDL

Comments

BDL - BELOW DETECTION LIMIT

GC/MS Purgeables

IEA Sample No. 287026 3

Client Identification W-3A

Date Analyzed September 10, 1986 **By** King

Number	Compound	Detection Limit µg/L	Results Concentration µg/L
1	BENZENE	10	BDL
2	BROMODICHLOROMETHANE	10	BDL
3	BROMOFORM	10	BDL
4	BROMOMETHANE	10	BDL
5	CARBON TETRACHLORIDE	10	BDL
6	CHLOROBENZENE	10	BDL
7	CHLOROETHANE	10	62
8	2-CHLOROETHYLVINYL ETHER	10	BDL
9	CHLOROFORM	10	BDL
10	CHLOROMETHANE	10	BDL
11	DIBROMOCHLOROMETHANE	10	BDL
12	1,2-DICHLOROBENZENE	10	BDL
13	1,3-DICHLOROBENZENE	10	BDL
14	1,4-DICHLOROBENZENE	10	BDL
15	1,1-DICHLOROETHANE	10	140
16	1,2-DICHLOROETHANE	10	BDL
17	1,1-DICHLOROETHENE	10	17
18	trans-1,2-DICHLOROETHENE	10	BDL
19	1,2-DICHLOROPROPANE	10	BDL
20	cis-1,3-DICHLOROPROPENE	10	BDL
21	trans-1,3-DICHLOROPROPENE	10	BDL
22	ETHYL BENZENE	10	BDL
23	METHYLENE CHLORIDE	10	BDL
24	1,1,2,2-TETRACHLOROETHANE	10	BDL
25	TETRACHLOROETHENE	10	BDL
26	TOLUENE	10	BDL
27	1,1,1-TRICHLOROETHANE	10	BDL
28	1,1,2-TRICHLOROETHANE	10	BDL
29	TRICHLOROETHENE	10	BDL
30	TRICHLOROFLUOROMETHANE	10	BDL
31	VINYL CHLORIDE	10	BDL

Comments

BDL - BELOW DETECTION LIMIT
Sample diluted by 1000 p ior to analysis.

GC/MS Purgeables

IEA Sample No. 287028 2

Client Identification W-4A

Date Analyzed September 19, 1986 **By** Daniels

Number	Compound	Detection Limit µg/L	Results Concentration µg/L
1	BENZENE	10,000	BDL
2	BROMODICHLOROMETHANE	10,000	BDL
3	BROMOFORM	10,000	BDL
4	BROMOMETHANE	10,000	BDL
5	CARBON TETRACHLORIDE	10,000	BDL
6	CHLOROBENZENE	10,000	BDL
7	CHLOROETHANE	10,000	BDL
8	2-CHLOROETHYLVINYL ETHER	10,000	BDL
9	CHLOROFORM	10,000	BDL
10	CHLOROMETHANE	10,000	BDL
11	DIBROMOCHLOROMETHANE	10,000	BDL
12	1,2-DICHLOROBENZENE	10,000	BDL
13	1,3-DICHLOROBENZENE	10,000	BDL
14	1,4-DICHLOROBENZENE	10,000	BDL
15	1,1-DICHLOROETHANE	10,000	240,000
16	1,2-DICHLOROETHANE	10,000	BDL
17	1,1-DICHLOROETHENE	10,000	16,000
18	trans-1,2-DICHLOROETHENE	10,000	BDL
19	1,2-DICHLOROPROPANE	10,000	BDL
20	cis-1,3-DICHLOROPROPENE	10,000	BDL
21	trans-1,3-DICHLOROPROPENE	10,000	BDL
22	ETHYL BENZENE	10,000	BDL
23	METHYLENE CHLORIDE	10,000	BDL
24	1,1,2,2-TETRACHLOROETHANE	10,000	BDL
25	TETRACHLOROETHENE	10,000	BDL
26	TOLUENE	10,000	BDL
27	1,1,1-TRICHLOROETHANE	10,000	370,000
28	1,1,2-TRICHLOROETHANE	10,000	BDL
29	TRICHLOROETHENE	10,000	BDL
30	TRICHLOROFLUOROMETHANE	10,000	BDL
31	VINYL CHLORIDE	10,000	BDL

Comments

BDL - BELOW DETECTION LIMIT
Acetone detected at 70 µg/L

GC/MS Purgeables

IEA Sample No. 287025 2

Client Identification J1913A W-2

Date Analyzed September 3, 1986 **By** King

Number	Compound	Detection Limit µg/L	Results Concentration µg/L
1	BENZENE	10	BDL
2	BROMODICHLOROMETHANE	10	BDL
3	BROMOFORM	10	BDL
4	BROMOMETHANE	10	BDL
5	CARBON TETRACHLORIDE	10	BDL
6	CHLOROBENZENE	10	BDL
7	CHLOROETHANE	10	BDL
8	2-CHLOROETHYLVINYL ETHER	10	BDL
9	CHLOROFORM	10	BDL
10	CHLOROMETHANE	10	BDL
11	DIBROMOCHLOROMETHANE	10	BDL
12	1,2-DICHLOROBENZENE	10	BDL
13	1,3-DICHLOROBENZENE	10	BDL
14	1,4-DICHLOROBENZENE	10	BDL
15	1,1-DICHLOROETHANE	10	BDL
16	1,2-DICHLOROETHANE	10	BDL
17	1,1-DICHLOROETHENE	10	BDL
18	trans-1,2-DICHLOROETHENE	10	BDL
19	1,2-DICHLOROPROPANE	10	BDL
20	cis-1,3-DICHLOROPROPENE	10	BDL
21	trans-1,3-DICHLOROPROPENE	10	BDL
22	ETHYL BENZENE	10	BDL
23	METHYLENE CHLORIDE	10	100 —
24	1,1,2,2-TETRACHLOROETHANE	10	BDL
25	TETRACHLOROETHENE	10	BDL
26	TOLUENE	10	BDL
27	1,1,1-TRICHLOROETHANE	10	BDL
28	1,1,2-TRICHLOROETHANE	10	BDL
29	TRICHLOROETHENE	10	BDL
30	TRICHLOROFLUOROMETHANE	10	BDL
31	VINYL CHLORIDE	10	BDL

Comments

BDL - BELOW DETECTION LIMIT

GC/MS Purgeables

IEA Sample No. 287025 6

Client Identification HA-3 Water Sample

Date Analyzed September 3, 1986 **By** King

Number	Compound	Detection Limit µg/L	Results Concentration µg/L
1	BENZENE	10	BDL
2	BROMODICHLOROMETHANE	10	BDL
3	BROMOFORM	10	BDL
4	BROMOMETHANE	10	BDL
5	CARBON TETRACHLORIDE	10	BDL
6	CHLOROBENZENE	10	BDL
7	CHLOROETHANE	10	BDL
8	2-CHLOROETHYLVINYL ETHER	10	BDL
9	CHLOROFORM	10	BDL
10	CHLOROMETHANE	10	BDL
11	DIBROMOCHLOROMETHANE	10	BDL
12	1,2-DICHLOROBENZENE	10	BDL
13	1,3-DICHLOROBENZENE	10	BDL
14	1,4-DICHLOROBENZENE	10	BDL
15	1,1-DICHLOROETHANE	10	BDL
16	1,2-DICHLOROETHANE	10	BDL
17	1,1-DICHLOROETHENE	10	BDL
18	trans-1,2-DICHLOROETHENE	10	BDL
19	1,2-DICHLOROPROPANE	10	BDL
20	cis-1,3-DICHLOROPROPENE	10	BDL
21	trans-1,3-DICHLOROPROPENE	10	BDL
22	ETHYL BENZENE	10	BDL
23	METHYLENE CHLORIDE	10	BDL
24	1,1,2,2-TETRACHLOROETHANE	10	BDL
25	TETRACHLOROETHENE	10	13
26	TOLUENE	10	BDL
27	1,1,1-TRICHLOROETHANE	10	BDL
28	1,1,2-TRICHLOROETHANE	10	BDL
29	TRICHLOROETHENE	10	BDL
30	TRICHLOROFLUOROMETHANE	10	BDL
31	VINYL CHLORIDE	10	BDL

Comments

BDL - BELOW DETECTION LIMIT
Acetone detected at 740 µg/L

GC/MS Purgeables

IEA Sample No. 287025 7

Client Identification HA-5 Water Sample

Date Analyzed September 3, 1986 **By** King

Number	Compound	Detection Limit µg/L	Results Concentration µg/L
1	BENZENE	20	BDL
2	BROMODICHLOROMETHANE	20	BDL
3	BROMOFORM	20	BDL
4	BROMOMETHANE	20	BDL
5	CARBON TETRACHLORIDE	20	BDL
6	CHLOROBENZENE	20	BDL
7	CHLOROETHANE	20	BDL
8	2-CHLOROETHYLVINYL ETHER	20	BDL
9	CHLOROFORM	20	BDL
10	CHLOROMETHANE	20	BDL
11	DIBROMOCHLOROMETHANE	20	BDL
12	1,2-DICHLOROBENZENE	20	BDL
13	1,3-DICHLOROBENZENE	20	BDL
14	1,4-DICHLOROBENZENE	20	BDL
15	1,1-DICHLOROETHANE	20	BDL
16	1,2-DICHLOROETHANE	20	BDL
17	1,1-DICHLOROETHENE	20	BDL
18	trans-1,2-DICHLOROETHENE	20	BDL
19	1,2-DICHLOROPROPANE	20	BDL
20	cis-1,3-DICHLOROPROPENE	20	BDL
21	trans-1,3-DICHLOROPROPENE	20	BDL
22	ETHYL BENZENE	20	BDL
23	METHYLENE CHLORIDE	20	BDL
24	1,1,2,2-TETRACHLOROETHANE	20	BDL
25	TETRACHLOROETHENE	20	BDL
26	TOLUENE	20	BDL
27	1,1,1-TRICHLOROETHANE	20	BDL
28	1,1,2-TRICHLOROETHANE	20	BDL
29	TRICHLOROETHENE	20	BDL
30	TRICHLOROFLUOROMETHANE	20	BDL
31	VINYL CHLORIDE	20	BDL