Manor Timber Company
102 Black Ankle Road, Manor, Clinch County, GA
GAD061921053

RCRA PART B PERMIT RENEWAL APPLICATION FOR POST CLOSURE CARE AND CORRECTIVE ACTION

TABLE OF CONTENTS

Attachments for each section are shown in italics.

Georgia Department of Natural Resources
Environmental Protection Division
Hazardous Waste Branch
2 Martin Luther King Jr. Dr. SE, Suite 1054, East Tower
Atlanta, GA 30334

RE: Company certification statement for Manor Timber Company, Inc.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to a system designed to assure that qualified personnel properly gather and evaluate information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

6/28/2023

Adam Henderson
President

Date

GEORGIA
DEPARTMENT OF NATURAL RESOURCES

ENVIRONMENTAL PROTECTION DIVISION

Richard E. Dunn, Director

Land Protection Branch
2 Martin Luther King, Jr. Drive
Suite 1054, East Tower
Atlanta, Georgia 30334
404-656-7802

HAZARDOUS WASTE PERMIT PART A FORM

EPA ID Number G A D 0 6 1 9 2 1 0 5 2

1. Facility Name

Manor Timber Company

2. Reason for Submittal

- ○ First-Time Applicant
- ○ Modification (Check one)
  - ☐ Class 1 not requiring approval
  - ☐ Class 1 requiring approval
  - ☐ Class 2
  - ☐ Class 3
- ◉ Renewal

3. Facility Existence Date (mm/dd/yyyy)

/ / 1968

4. Facility Status (Check all that apply)

- ☐ Operating TSD
- ☑ Post-Closure
- ☑ HSWA Corrective Action

5. Facility Location Address

Street Address 102 Black Ankle Road			
City Manor	County Clinch	State GA	Zip Code 31550
Latitude N31o 04' 36"		Longitude W82o 38' 01"	

Land Type: ◉ Private ○ Municipal ○ County ○ State ○ Federal ○ Other

6. Facility Mailing Address ☑ Same as Location Address

Street Address 102 Black Ankle Road		
City Manor	State GA	Zip Code 31550

7. Facility Permit Contact

Full Name Samuel Adam Henderson		Title Owner
Phone 912-487-2621	Fax 912-487-1664	Email mtc@planttel.net

8. Facility Permit Contact Mailing Address ☑ Same as Location Address

Street Address 102 Black Ankle Road		
City Manor	State GA	Zip Code 31550

9. Legal Owner and Operator of the Facility

Does the Facility have multiple owners and/or operators? If yes, please use Attachment 1. ○ Yes ◉ No

A. Name of Facility's Legal Owner ☑ Same as Location Address

Full Name: Manor Timber Company		Date Became Owner: 03/14/2002	
Are there any previous owners of this Facility? If yes, please list in an attachment. ◉ Yes ○ No			
Owner Type: ◉ Private ○ Municipal ○ County ○ State ○ Federal ○ Other			
Street Address: 102 Black Ankle Road			
City: Manor			
State: GA	Country: Clinch	Zip Code: 31550	
Phone: 912-487-2621	Fax: 912-487-1664	Email: mtc@planttel.net	

B. Name of Facility's Legal Operator ☐ Same as Facility's Legal Owner

Full Name: Samuel Henderson		Date Became Operator: 01/01/2015	
Are there any previous operators of this Facility? If yes, please list in an attachment. ○ Yes ◉ No			
Operator Type: ◉ Private ○ Municipal ○ County ○ State ○ Federal ○ Other			
Street Address: 102 Black Ankle Road			
City: Manor			
State: GA	Country: Clinch	Zip Code: 31550	
Phone: 912-487-2621	Fax: 912-487-1664	Email: mtc@planttel.net	

10. North American Industry Classification System (NAICS) Code(s) for the Facility (at least 5-digit codes)

A. (Primary) 321114	C.
B.	D.

11. Nature of Business

Wood preservation facility that pressure treats wood using 2 types of preservation solutions including chromium copper arsenate (CCA) and creosote.

12. Other Environmental Permits

A. Permit Type	B. Permit Number															C. Description
S	H	W	-	0	4	7	(	D	)							GA Hazardous Waste Facility Permit
N	G	A	R	0	5	0	0	0								Industrial Storm Water Discharge

13. Process Information

Line No.		A. Process Code			B. Process Design Capacity		C. Process Total Number of Units	D. Unit Name
					(1) Amount	(2) Unit of Measure		
X	1	D	8	0	14854	Y	1	Closed Hazardous Waste Surface
								Impoundment as Landfill

14. Description of Hazardous Wastes

Line No.		A. EPA Hazardous Waste Code				B. Estimated Annual Qty of Waste	C. Unit of Measure	D. Processes									
								(1) Process Codes									(2) Process Description (if code is not entered in 14.D1)
0	1	F	0	3	4	1000	P	S	0	1							
0	2	U	0	5	1	100	P	S	0	1							
0	3	F	0	3	5	3000	P	S	0	1							
0	4	F	0	3	5	3500	P	T	4	9							

15. Clean Closed Hazardous Waste Management Units (Do not include current Post-Closure Units)

Unit Name	Dates of Operation			Date of Clean Closure Certification, if applicable	Date of Clean Closure Equivalency Demonstration, if applicable
N/A		to			
		to			
		to			
		to			

16. Map

Attach to this application a topographical map, or other equivalent map, of the area extending to at least one mile beyond property boundaries. The map must show the outline of the entire facility, the location of each of its existing intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids under- ground. Include all springs, rivers, and other surface water bodies in this map area. Include drinking water wells listed in public records or otherwise known to the applicant within ¼ mile of the facility property boundary. USGS 7.5-minute series topographic or orthophotographic maps are available for all areas of the state.

17. Facility Drawing

All existing facilities must include a scale drawing of the facility showing the location of all past, present, and proposed treatment, storage, and disposal areas, including but not limited to solid waste management units and areas of concern.

18. Photographs

All existing facilities must include dated photographs (aerial or ground-level) that clearly delineate all existing structures; existing storage, treatment, and disposal areas; and sites of future storage, treatment, or disposal areas. Use the process codes listed in item 14 to indicate the location of all storage, treatment, and disposal areas.

19. List of Affected Governments

Full Name City of Homerville Fire Department		**Title** Danny Strickland, Chief
Street Address 97 West Dame Avenue		
City Homerville	**State** GA	**Zip Code** 31634

Full Name Southern Georgia Regional Commission		**Title** Henry Moylan, Clinch County Rep
Street Address 1937 Carlton Adams Rd Drive		
City Valdosta	**State** GA	**Zip Code** 31601

Full Name Clinch County Board of Commissioners		**Title** Roger Metts, Chairman
Street Address 22 Courthouse Square, Suite B		
City Homerville	**State** GA	**Zip Code** 31634

Full Name Clinch County News		**Title** Legal Organ for Manor, GA
Street Address 113 East Dame Avenue		
City Homerville	**State** GA	**Zip Code** 31634

Full Name City of Argyle, GA (Clinch County)		**Title** Kaye Riley, Mayor
Street Address PO Box 156		
City Argyle	**State** GA	**Zip Code** 31623

Full Name City of Homerville, GA (Clinch County)		**Title** Brooks Blitch, Mayor
Street Address 20 South College Street, Suite A		
City Homerville	**State** GA	**Zip Code** 31634

16. Map

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19. List of Affected Governments- continued

Full Name Clinch County, GA		**Title** Brooks Blitch, Mayor
Street Address PO Box 156		
City Argyle	**State** GA	**Zip Code** 31623

Full Name City of Fargo (Clinch County)		**Title** Roy Abbott, Mayor
Street Address PO Box 387		
City Fargo	**State** GA	**Zip Code** 31631

Full Name Ware County		**Title** Elmer Thrift, Commission Chairman
Street Address 305 Oak Street, Suite 227		
City Waycross	**State** GA	**Zip Code** 31501

Full Name		**Title**
Street Address		
City	**State**	**Zip Code**

Full Name		**Title**
Street Address		
City	**State**	**Zip Code**

Full Name		**Title**
Street Address		
City	**State**	**Zip Code**

20. Comments (include item number for each comment)

9A. The previous owner was William Peagler, the company was in a Trust and he purchased it from the Trust. The executors of the trust were Marrell Beverly and Edwin Pittman.*

21. Certification I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations. **Note: For the RCRA Hazardous Waste Part A permit Application, all owners and operators must sign (see 40CFR 270.10(b) and 270.11).**

Signature of legal owner, operator or authorized representative	Date (mm/dd/yyyy)
[signature]	06/26/2023
Printed Name (First, Middle Initial, Last) Samuel Adam Henderson	Title Owner/Operator

Signature of legal owner, operator or authorized representative	Date (mm/dd/yyyy)
Printed Name (First, Middle Initial, Last)	Title

WALKER & SWEAT
Attorneys at Law
809 Elizabeth Street
P.O. Box 1100
Waycross, Georgia 31502
wands@walkerandsweat.com

COPY

Bruce M. Walker
Forrest W. Sweat, Jr.

Telephone
(912) 287-1100

Facsimile
(912) 285-3454

January 8, 2015

Mr. Judson H. Turner, Director
Georgia Department of Natural Resources
Environmental Protection Division
2 Martin Luther King Jr. Drive
Suite 1456, East Tower
Atlanta, GA 30334

Re: Manor Timber Company, Incorporated
EPA ID #: GAD061921052

Dear Mr. Turner:

I represent Manor Timber Company, Incorporated, which plans to sell its wood preserving plant in Argyle, Georgia to Samuel Adam Henderson. Attached please find a copy of the sales contract. Also enclosed is the Part "A" application prepared by Mr. Henderson. Manor Timber Company, Incorporated will remain the owner but Samuel Adam Henderson will be the new operator.

This sale is scheduled to close on April 13, 2015, which should place us in compliance with CFR § 270.40 (B). Please advise if this does not meet your approval.

Very Truly Yours,

Bruce Walker

Bruce M. Walker

IN WITNESS WHEREOF, the parties to this Agreement have executed the same in duplicate and have hereunto set their hands and affixed their seals the day and year first above written.

SELLERS:

Merrell Beverly, Co-Trustee for William F. Peagler, Jr., which trust is known as Manor Timber Company Trust A; and Co-Trustee for Robert Michael Peagler, which trust is known as Manor Timber Company Trust C

Edwin Pittman, Co-Trustee for William F. Peagler, Jr., which trust is known as Manor Timber Company Trust A; and Co-Trustee for Robert Michael Peagler, which trust is known as Manor Timber Company Trust C

PURCHASER:

Samuel Adam Henderson

Signed, sealed and delivered in the presence of:

Witness
Jamie L. Whitaker

Notary
Shonda K. Braddock

SHONDA K. BRADDOCK
NOTARY
Comm. Exp.
10/01/17
PUBLIC
WARE COUNTY, GA

EXHIBIT "A"

TRACT ONE: All that certain tract or parcel of land situate, lying and being in original lots of land Nos. 414 and 415 in the 7th Land District of Clinch County, Georgia, and described as commencing at an iron pin on the west margin of Black Ankle Road and at its intersection with the south margin of the Seaboard Coastline Railroad Company right of way; thence running along a line bearing south 67 degrees 14 minutes west along the southern margin of said railroad right of way a distance of 482.66 feet to a stake; thence running along a line bearing south 16 degrees 52 minutes east a distance of 1,365.02 feet to an iron pin; thence running along a line bearing north 75 degrees 06 minutes 02 seconds east a distance of 480.38 feet to a stake on the west margin of Black Ankle Road; thence running along a line bearing north 16 degrees 52 minutes west a distance of 636.73 feet to an iron pin; thence running along a line bearing north 85 degrees 08 minutes east a distance of 173.29 feet to an iron pin; thence running along a line bearing north 01 degree 25 minutes west a distance of 186 feet to an iron pin; thence running along a line bearing north 63 degrees 58 minutes east a distance of 69.10 feet to an iron pin; thence running along a line bearing north 24 degrees 34 minutes 54 seconds west a distance of 200.31 feet to a stake; thence running along a line bearing south 68 degrees 13 minutes west a distance of 261.34 feet to an iron pin; thence running along a line bearing north 16 degrees 52 minutes west a distance of 464.06 feet to an iron pin, being the point of beginning, containing 17.3561 acres, more or less.

The above described property is more particularly shown by a plat of survey prepared by William H. Branch, Registered Surveyor, for Manor Timber Company, Inc., dated February 3, 1976, as appears of record in Plat Book C, Page 174 in the office of the Clerk of Clinch County Superior Court and reference is hereby made thereto for all proper purposes. Said property is identified on said plat as Tract "B".

TRACT TWO: All that tract or parcel of land, situate, lying and being in Land Lot 414 in the 7th Land District of Clinch County, Georgia containing two (2) acres, more or less, and described as commencing at a point on the westerly margin of Black Ankle Road which point is 424.06 feet south of the intersection of the southern margin of the Seaboard Coastline Railroad right of way with the westerly margin of Black Ankle Road; thence from said beginning point run north 68 degrees 13 minutes east a distance of 337.61 feet; thence run south 24 degrees 34 minutes 54 seconds east a distance of 530.74 feet; thence run south 85 degrees 08 minutes west a distance of 416.73 feet to a point on the westerly margin of Black Ankle Road; thence run north 16 degrees 52 minutes west along the westerly margin of Black Ankle Road; thence run north 16 degrees 52 minutes west along the westerly margin of Black Ankle road a distance of 40 feet; thence run north 85 degrees 08 minutes east a distance of 173.29 feet; thence run north 01 degree 25 minutes west a distance of 186 feet to a point; thence run north 63 degrees 8 minutes east a distance of 69.10 feet; thence run north 24 degrees 34 minutes 54 seconds west a distance of 200.31 feet; thence run south 68 degrees 13 minutes west a distance of 261.34 feet to a point on the westerly margin of Black Ankle Road; thence run north 16 degrees 52 minutes west a distance of 40 feet to the point or place of beginning.

The above description is in accordance with a plat of survey prepared by William H. Branch, Jr., Registered Surveyor, dated February 3, 1976 and revised June 25, 1982 as appears of record in Plat Book D, Page 164, in the office of the Clerk of the Superior Court of clinch County, Georgia and reference is hereby made thereto for all proper purposes. The land conveyed by this conveyance is identified as Tract "C" on said plat.

TRACT THREE: All that tract or parcel of land situate, lying and being in Land Lot 414 of the 7th Land District of Clinch County, Georgia containing 0.88 acre, being more particularly described as follows: Commence at an nail and cap at the intersection of the center line of the CSX Railroad Track with the center line of Black Ankle Road; thence run south along the center line of Black Ankle Road a distance of 910.95 feet to an iron pin; thence run north 85 degrees 08 minutes 00 seconds east a distance of 13.53 feet to the point or place of beginning of the lands herein conveyed; thence run from said beginning run north 85 degrees 08 minutes 00 seconds east a distance of 392.20 feet; thence run south 57 degrees 37 minutes 40 seconds west a distance of 267.60 feet; thence run south 43 degrees 29 minutes 20 seconds west a distance of 144.72 feet to the eastern margin of Black Ankle Road; thence run north 16 degrees 52 minutes 00 seconds west along the eastern margin of Black Ankle Road a distance of 224.65 feet to the point or place of beginning. This description is in accordance with a plat of survey prepared by James H. Mills, Registered Land Surveyor, dated June 17, 1991 and recorded in Plat Book F, Page 203 in the office of the Clerk of the Superior Court of Clinch County, Georgia with reference being hereby made to said plat for all proper purposes.

TRACT FOUR: All that tract or parcel of land situate, lying and being in Land Lot 414 of the 7th Land District of Clinch County, Georgia containing 0.07 acre, being more particularly described as follows: Commence at an nail and cap at the intersection of the center line of the CSX Railroad Tract with the center line of Black Ankle Road; thence run south along Black Ankle Road a distance of 500.65 feet to an iron pin; thence run north 71 degrees 52 minutes 20 seconds east a distance of 13 feet to the point or place of beginning of the land herein conveyed; thence from said beginning point run north 71 degrees 52 minutes 20 seconds east a distance of 312.53 feet; thence run south 68 degrees 13 minutes 00 seconds west a distance of 313.61 feet to the eastern margin of Black Ankle road; thence run north 16 degrees 52 minutes 00 seconds west along the eastern margin of Black Ankle Road a distance of 20 feet to the point or place of beginning. This description is in accordance with a plat of survey prepared by James H. Mills, Registered Land Surveyor, dated June 17, 1991 and recorded in Plat Book F, Page 203 in the office of the Clerk of the Superior Court of Clinch County, Georgia with reference being hereby made to said plat for all proper purposes.

Also conveyed is a 1993 Fleetwood Auburn Mobile Home.

TRACT FIVE: All that tract or parcel of land situate, lying and being in Land Lots 413, 414 and 415 in the 7th Land District of Clinch County, Georgia, containing 29.5860 acres, more or less, and described as commencing at a point in the southern margin of the Seaboard Coastline Railroad Right of Way at its intersection with the south original lot line of Land Lot 413, thence from said Beginning Point, run north 67 degrees 14 minutes east along the southern margin of said railroad right of way a distance of 2,212.45 feet; thence run south 16 degrees 52 minutes east a distance of 1,365.02 feet; thence run south 75 degrees 06 minutes 12 seconds west a distance of 649.50 feet; thence run north 00 degrees 15 minutes 52 seconds east a distance of 616.02 feet; thence run north 89 degrees 58 minutes west a distance of 1,811.29 feet to the point or place of beginning.
The above described property is more particularly shown by a plat of survey prepared by William H. Branch, Registered Surveyor, for Manor Timber Company, Inc., dated February 3, 1976 as appears of record in the office of the Clerk of Clinch County Superior Court in Plat Book C, Page 174 and reference is hereby made thereto for all proper purposes, the above described property begin identified on said plat as Tract "A".

COPY

MINUTES OF MEETING OF BOARD OF DIRECTORS OF MANOR TIMBER COMPANY, INCORPORATED

The Board of Directors of Manor Timber Company, Incorporated met at 2:00 p.m. on January 5, 2015 at the office of Walker & Sweat, 809 Elizabeth Street, Waycross, Georgia. Present were all the directors, Merrell Beverly and Edwin Pittman. Edwin Pittman made a motion for the corporation to sell all the company's timber land to Samuel Adam Henderson for $145,000.00, and that Merrell Beverly and Edwin Pittman as officers of the corporation be authorized to do all things necessary to finalize the transaction. Merrell Beverly seconded the motion. The motion was voted on and approved.

Edwin Pittman made a second motion that all the stock of Manor Timber Company, Incorporated be sold to Samuel Adam Henderson for $255,000.00, and that Merrell Beverly and Edwin Pittman as officers of the corporation be authorized to do all things necessary to finalize the transaction. Merrell Beverly seconded the motion. The motion was voted on and approved.

There being no further business, the meeting adjourned.

This 5th day of January, 2015.

Merrell Beverly

Merrell Beverly,
Director

Edwin Pittman

Edwin Pittman,
Director

MINUTES OF MEETING OF SHAREHOLDERS OF MANOR TIMBER COMPANY, INCORPORATED

The Shareholders of Manor Timber Company, Incorporated met at 1:00 p.m. on January 5, 2015 at the office of Walker & Sweat, 809 Elizabeth Street, Waycross, Georgia. All the stock of the corporation, being 150 shares, is held in trust by Edwin Pittman and Merrell Beverly. They were both present.

The meeting was called to order by Merrell Beverly. Edwin Pittman made a motion that the Board of Directors be authorized to accept an offer from Samuel Adam Henderson to buy all the timber land owned by the corporation for $145,000.00. Merrell Beverly seconded the motion. The motion was duly voted on and approved.

Merrell Beverly made a motion that the Board of Directors be authorized to accept an offer from Samuel Adam Henderson to buy all the stock of the corporation for $255,000.00. Edwin Pittman seconded the motion. The motion was duly voted on and approved.

There being no further business the meeting adjourned.

This 5th day of January, 2015.

Edwin Pittman

Edwin Pittman
Secretary/Treasurer

CLINCH COUNTY, GEORGIA.

SALES CONTRACT

This agreement made and entered into this 8th day of January, 2015, between **Manor Timber Company, Incorporated**, of Clinch County, Georgia, hereinafter referred to as Seller, and **Samuel Adam Henderson** of Ware County, Georgia, hereinafter referred to as Purchaser.

W I T N E S S E T H;

That Seller agrees to sell to Purchaser and Purchaser agrees to buy from Seller, subject to the terms and provisions of this agreement, the following described property:

SEE EXHIBIT "A" ATTACHED HERETO.

The terms of the agreement are as follows:

1.

The purchase price shall be **$145,000.00** to be paid at closing. Pursuant to the terms of the Last Will and Testament of William F. Peagler, Sr., the proceeds check from this sale shall be made payable to Bruce M. Walker and LeWayne Dalton as Trustees of Manor Timber Company Trust B and Manor Timber Company Trust D.

2.

Seller acknowledges receipt of the sum of $1.00 as a binder, and it is agreed that said amount shall be applied to the purchase price when the sale is closed except that if title is not approved by attorneys at law selected by Purchaser, said amount shall be refunded to Purchaser.

EXHIBIT "A"

All of Lot of Land No. 414 lying south of the A. C. L. Railroad and containing 120 acres, more or less. Also 15 acres, more or less, and being a part of Lot of Land No. 415 adjoining to the above tract and described as follows: Lying in the northwest corner of said Lot 415, measuring 1000 feet long east and west and 653.4 feet wide north and south bounded north and west by original lot lines and south and east by lands of Mrs. Robert Peagler.

Also, all of Lot of Lands No. 413 lying south of the A. C. L. Railroad and containing 15 acres, more or less. All of said lands lying and being in the 7th Land District of Clinch County, Georgia and being the same property heretofore conveyed to Mazelle Pittman by Warranty Deed from E. P. Cox, dated August 9, 1949 and recorded in Deed Book TT, Page 128, in the office of the Clerk of the Superior Court of Clinch County, Georgia.

There is EXCEPTED from the above-described property those parcels conveyed to Manor Timber Company by deeds from Mazelle Pittman recorded in Deed Book 3-E, Page 578; Deed Book 3-E, Page 580; Deed Book 3-K, Page 223; and Deed Book 4-E, Page 268, all in the office of the Clerk of the Superior Court of Clinch County, Georgia.

CLINCH COUNTY, GEORGIA.

SALES AGREEMENT

This agreement made and entered into this 8th day of January, 2015 by and between **Edwin Pittman and Merrell Beverly as Trustees for William F. Peagler, Jr., which trust is known as Manor Timber Company Trust A**, and **Edwin Pittman and Merrell Beverly, as Trustees for Robert Michael Peagler, which trust is known as Manor Timber Company Trust C**, of Ware County, Georgia and Clinch County, Georgia, hereinafter referred to as "Sellers," and **Samuel Adam Henderson** of Ware County, Georgia, hereinafter referred to as "Purchaser." The Trusts referred to herein were established in accordance with the Last Will and Testament of William F. Peagler, Sr., which is of record in the office of the Probate Court of Ware County, Georgia.

WITNESSETH;

WHEREAS, Sellers and Purchaser have reached an agreement with respect to the sale and purchase of the stock of Manor Timber Company, Incorporated.

NOW THEREFORE, for and in consideration of the premises, the mutual covenants and benefits herein contained, the sum of Ten Dollars ($10.00) and other valuable consideration, the receipt and sufficiency whereof is hereby acknowledged, the parties hereto, do hereby agree as follows:

1.

Sellers hereby agree to sell to Purchaser and Purchaser agrees to buy from Sellers all the stock of Manor Timber Company, Incorporated. Manor Timber Company, Incorporated owns and operates a wood preserving plant near Argyle. The Company's current address is 102 Black Ankle Road, Manor, GA 31550. The plant site is in Clinch County, Georgia. The assets, represented by the stock, include all corporate bank accounts, inventory, vehicles, machinery, office equipment, furnishings, buildings, any work in progress and the following described real property which constitutes the plant site:

SEE EXHIBIT "A" ATTACHED HERETO

2.

The purchase price shall be Two Hundred Fifty-five Thousand and no/100 Dollars ($255,000.00) to be paid at closing. Pursuant to the terms of the Last Will and Testament of William F. Peagler, Sr., the proceeds check from this sale will be made payable to Bruce M. Walker & LeWayne Dalton as Trustees of Manor Timber Company Trust B and Manor Timber Company Trust D. A major asset of Manor Timber Company, Incorporated is the Manor Timber Company Financial Assistance Trust Account at Farmers and Merchants Bank in Homerville, Georgia. This account was created and is maintained under directive of the Georgia Environmental Protection Division.

3.

The change in ownership of Manor Timber Company, Incorporated is to be made as a Class 1 Modification with prior written approval of the director in accordance with CFR §270.40 (b). The new owner/operator will submit a revised permit application no later than ninety (90) days prior to the scheduled change. This Agreement specifying a specific date for transfer of permit responsibility will be submitted to the Director.

4.

The Purchaser shall arrange his own financing. He will have the right to have title to the above described property examined and approved by attorneys selected by him. In the event that title to the real estate is not approved, this Agreement shall be null and void.

5.

Closing of the sale shall take place on or before April 13, 2015 in the office of the buyer's attorney or any other place mutually agreed upon. The closing date may be extended once for as much as thirty (30) additional days, if buyers and sellers agree. Sellers agree to deliver at closing the stock of Manor Timber Company, Incorporated.

6.

All closing costs incurred by the Purchaser in connection with this purchase shall be paid by him. The Sellers will be responsible for paying their attorneys for services rendered in connection with this sale. The parties hereto agree to pro-rate the taxes on the property as of the date of closing.

7.

Sellers agree to be responsible for and pay to the Purchaser payroll taxes for all employees of the business to and including the day of closing.

8.

Sellers agree that they will deliver and make available at closing all invoices, old files and records of the business. Purchaser agrees to maintain the same and to make them available to Sellers upon reasonable request by Sellers for a period of one year from the date of sale. Purchaser agrees that he is acquiring the property of the corporation "as is" on the date of closing.

9.

Sellers and Purchaser acknowledge that this Agreement is based upon the Purchasers agreement to buy this Company with full knowledge of the fact that it has operated for years as a wood preserving plant on this site; and that with this type of facility the owner/operator incurs certain responsibilities, duties, and liabilities to the Environmental Protection Agency and the Georgia Environmental Protection Division (GEPD). As such, the facility is currently operating under a Post Closure Care Permit issued by the GEPD (Permit Number HW-047D). To the best of the knowledge and belief of the Seller, the Seller is operating the facility in compliance with the permit as issued by the GEPD. The Purchaser has had ample opportunity to review the permit and the requirements contained therein and accepts the facility "as is". The Seller and Purchaser agree that they will notify the GEPD of the intended change in ownership of the facility as contemplated by this agreement and the Purchaser will have the sole responsibility for insuring that all permit requirements are met after the closing anticipated herein. The Purchaser agrees to indemnify and hold the Sellers harmless from and against any and all liability, including costs, fines, penalties and attorney's fees associated with any subsequent enforcement action, third party claim, environmental cleanup or other liabilities which may arise in regard to any of the assets being purchased or the environmental conditions or liabilities associated with the same (hereinafter referred to as the "Purchasers' Indemnities"). Purchaser acknowledges that he will assume full responsibility for past and future operations at this site.

10.

In consideration for the Purchaser's Indemnities, Sellers will be transferring to Purchaser the Manor Timber Company Financial Assistance Trust Account at the Farmers and Merchants Bank in Homerville, GA, to provide financial assistance with any liabilities incurred by the Purchaser brought about by the Purchasers' Indemnities as outlines in section 9 hereof. It is understood between Purchaser and Sellers that after this sale, Edwin Pittman, Merrell Beverly, William F. Peagler, Jr., Robert Michael Peagler and the Estate of William F. Peagler, Sr. will be held harmless from liability by the Purchaser regarding indemnified items and that the Purchaser will pay any fines or damages assessed against them related to operations at this site.

11.

Seller further represents and warrants as follows:

(a) That there are no undisclosed liabilities, taxes, or otherwise, with respect to the business as of the date hereof, nor as of the date of closing;

(b) That pending closing, Sellers will not cause any material changes in the business, its financial condition, assets, liabilities, or business, other than changes in the ordinary course of business;

(c) That Sellers have good and marketable title to all assets and properties and interest being transferred herewith; and

(d) That there are neither lawsuits nor administrative proceedings involving the assets or property sold to the knowledge, information, and belief of Sellers.

12.

The Purchaser represents and warrants as follows:

(a) That Purchaser intends to continue the business operation and activities of Sellers following the consummation of the sale and will meet all GEPD Permit requirements associated with the continued operations; and

(b) That Purchaser has full authority to enter into this agreement without approval of any person, firm, or corporation.

13.

The Agreement shall inure to the benefit of and shall be binding upon the parties hereto and their legatees, distributees, estates, executors, administrators, personal representatives, successors and assigns, and other representatives.

14.

No change or modification of this Agreement shall be valid unless the same is in writing and signed by all parties hereto. No waiver of any provision of this Agreement shall be valid unless in writing and signed by the person against whom it is sought to be enforced. The failure of any party at any time to insist upon strict performance of any condition, promise, agreement, or understanding set forth herein shall not be construed as a waiver or relinquishment of the right to insist upon strict performance of the same or any other condition, promise, agreement or understanding at a future time.

15.

This Agreement, and the Exhibit attached, set forth all of the promises, agreements, conditions, understandings, warranties and representations among the parties hereto with respect to the sale of Manor Timber Company, Incorporated and any other matter set forth herein, and there are no promises, agreements, conditions, understandings, warranties, or representations, oral or written, express or implied, among them with respect to the sale of such business or such other matters except as set forth herein. Any and all prior agreements among the parties hereto with respect to the sale of said business and the other subject matters herein are hereby revoked. This Agreement is, and is intended by the parties to be, an integration of any and all prior agreements or understandings, oral or written, with respect to the sale of said business and such other matters set forth herein. It is the express intention of the parties that the agreements and indemnifications contained herein will survive the closing and will continue to be enforceable in a court of law or equity in the State of Georgia. All parties agree that the Superior Court of Ware County, Georgia will have jurisdiction to adjudicate any claims arising under this contract and venue is proper in the Superior Court of Ware County, Georgia.

February 19, 2008

Georgia Department of Natural Resources
Environmental Protection Division
Hazardous Waste Management Branch
Attn: Mr. Tom Brodell
2 Martin Luther King, Jr. Drive SE
Suite 1154E
Atlanta, Georgia 30334-9000

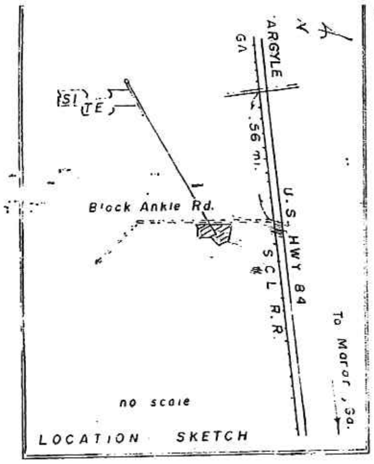
Re: Notice Filed as Required by 40 CFR 264.119
Manor Timber Company, Inc.
Argyle, Clinch County, Georgia

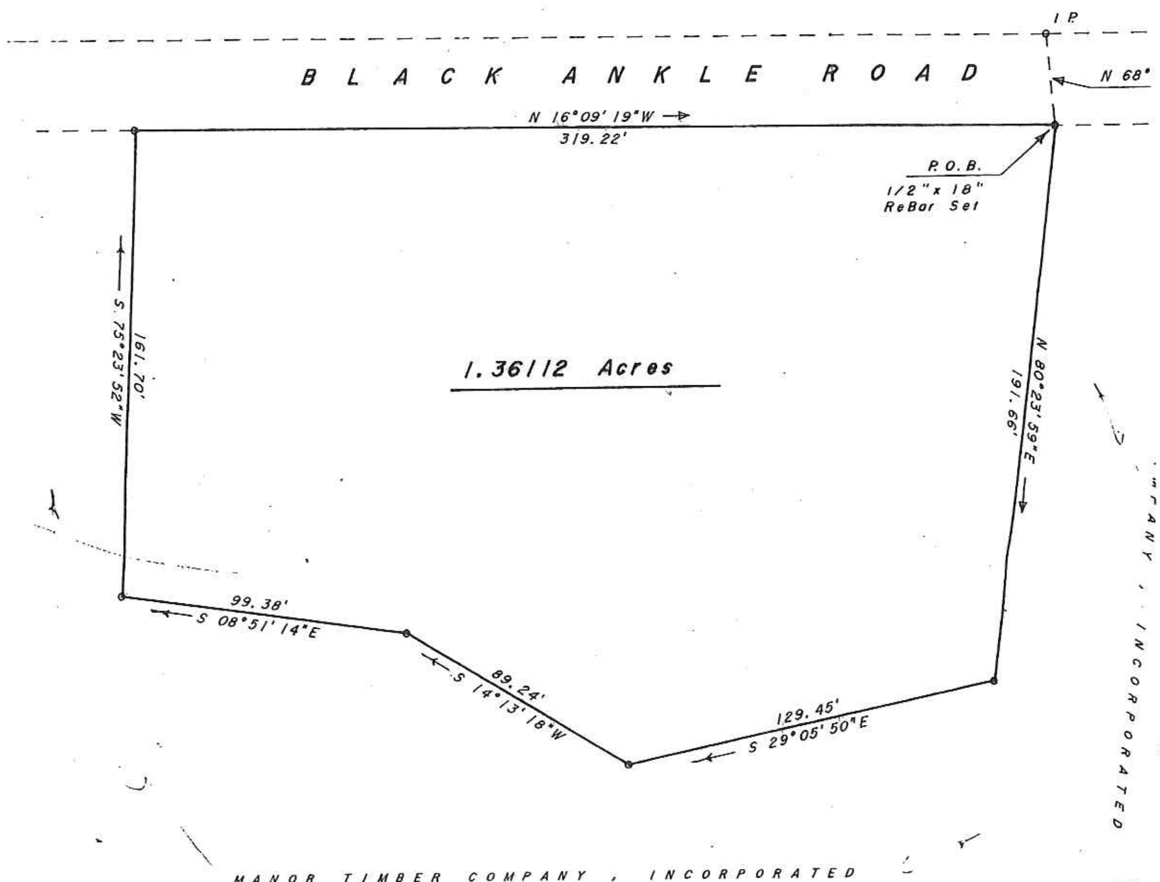
Dear Mr. Brodell:

In accordance with 40 CFR 264.119 we filed the attached notice on the Plat of the Closed Surface Impoundment with the Clerk of Superior Court of Clinch County, Georgia on December 29, 1988.

Sincerely,

William Peagler
Owner – Manor Timber Company





12" TOPSOIL

24" LOW PER
CLAY WELL CO
IN 6" LIFTS

THIS PLAT HAS BEEN RECORDED IN PLAT BOOK E
PAGE 39 IN THE OFFICE OF THE CLERK OF THE
SUPERIOR COURT OF Clinch COUNTY, GEORGIA
THIS 29 DAY OF Dec., 1988 : TIME 11 A.M.
Sarah Belle C. Booth
CLERK OF THE SUPERIOR COURT

S U R V

BRANCH
SURVEY
SYSTEMS
TOTAL
AUTOMATION

MANOR TIMBER CO

L.L. 114 - 7th LAND DISTRICT - CLINCH

DATE : 12 DECEMBER 1988 - SCALE : 1

R/W

S 67°14'W - 2695.11'
To South Orig. L.L.L. of L.L. 413

To Argyle, Ga

R/W

NORTH

S 16°52'00" E
464.06'
I.P.

?0°E 31.00'

℄

Seaboard Coastline R.R.
(150' R/W)

-N-O-T-E-

THE OWNER OF THE PARCEL OF LAND DEPICTED HEREON IS UNDER OBLIGATION TO RESTRICT DISTURBANCE OF SAID PROPERTY WHICH IS DESIGNATED AS A HAZARDOUS WASTE DISPOSAL UNIT ALL IN ACCORDANCE WITH THE APPLICABLE REGULATIONS IN SUBPART G OF PART 265, TITLE 40 OF THE CODE OF FEDERAL REGULATIONS

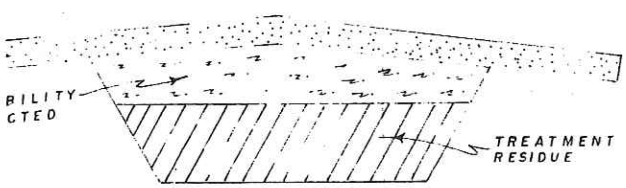
IN MY OPINION THIS PLAT IS A TRUE REPRESENTATION OF THE LAND PLATTED AND WAS PREPARED TO CONFORM WITH THE MINIMUM STANDARDS OF GEORGIA LAW.

CLOSURE: FIELD & PLAT 1' IN 10,000'
EQUIPMENT USED: TOPCON GS-10 Total Station

To Manor, Ga.

R/W

R/W



TYPICAL CROSS SECTION
NO SCALE

Y FOR

?ANY, INCORPORATED

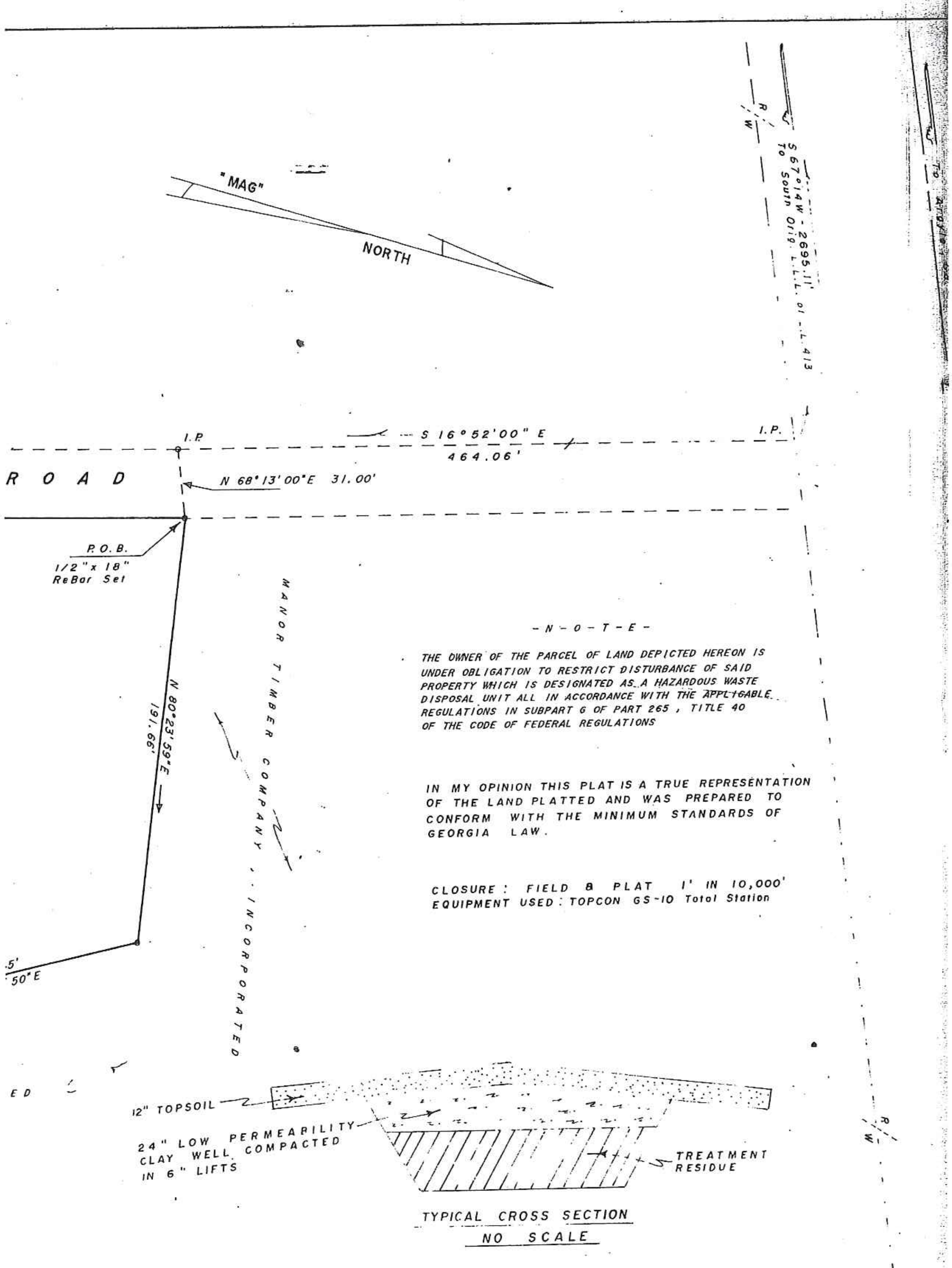
., GA.

.. 40'

0' 40' 80' 120'
1 Inch = 40 Feet
GRAPHIC SCALE

GEORGIA REGISTERED No. 1197 LAND SURVEYOR WILLIAM H. BRANCH JR.

WILLIAM H. BRANCH, JR.
GA. REG. LAND SURVEYOR NO. 1197
P.O. BOX 95 STOCKTON, GA. 31649
PHONE 1-912-242-0778



S U R V E Y F O R

T I M B E R C O M P A N Y , I N C O R P O R A T E D

LAND DISTRICT - CLINCH CO., GA.

0' 40' 80' 120'

SCALE : 1" = 40'

Page 3

POST-CLOSURE CARE COST ESTIMATE
MANOR TIMBER COMPANY
CLOSED SURFACE IMPOUNDMENT

FILE COPY

A. ONE TIME COST

		USD ($)
1. INSTALLATION OF MW-20		$1,250.00
2. INSTALLATION OF RW-3 (IF REQUIRED)		$2,500.00
3. CLOSURE OF AB-5		$200.00
4. REPORT OF ACTIVITIES		$1,500.00
	SUBTOTAL	$5,450.00

B. ANNUAL COSTS

GROUNDWATER MONITORING/SAMPLING

1. SAMPLE COLLECTION		$2,635.00
2. LABORATORY ANALYSES		$8,110.00
3. OTHER DIRECT COSTS		$1,000.00
	SUBTOTAL	$11,745.00

INSPECTIONS (WELLS, FINAL COVER, SITE CONTROL)

1. LABOR		$2,400.00
2. MISC. MATERIALS		$1,200.00
	SUBTOTAL	$3,600.00

MAINTENANCE (WELLS, FINAL COVER, SITE CONTROL)

1. LABOR		$1,500.00
2. MISC. MATERIALS		$2,000.00
	SUBTOTAL	$3,500.00

CORRECTIVE ACTION PROGRAM

1. ELECTRICITY		$4,000.00
2. REPLACEMENT GAC CANISTERS		$3,400.00
3. DISPOSAL COSTS USED GAC CANISTERS		$3,400.00
4. QUARTERLY ANALYSIS		$1,000.00
5. SEMI-ANNUAL REPORTS		$4,500.00
	SUBTOTAL	$16,300.00

	ANNUAL COST	$35,145.00
PLUS	10% CONTINGENCY	$3,514.00
	TOTAL ANNUAL COST	**$38,659.00**

There are 8 years remaining in the Post Closure Care period. The estimate total is therefore $309,272. Adding the one-time cost of $5,450 to $309,272 gives a Total Post Closure Care Cost Estimate of 314,722. The current value of the Manor Timber Trust Account is approximately $400,000. This leaves a surplus of $85,278.

FMB

Farmers and Merchants Bank

March 26, 2008

Carol A. Couch, Ph.D., Director
Environmental Protection Division
Department of Natural Resources
2 Martin Luther King Jr. Dr., Suite 1154
Atlanta, GA 30334

Dear Mrs. Couch,

This letter is to confirm that we, Farmers & Merchants Bank, received a deposit in the amount of $380,194.31 to the Manor Timber Company Financial Assurance Trust Agreement account on March 26, 2008.

Sincerely,

Susan P. Smith
Vice President

Trust Agreement for Closure and/or Post-Closure Care

Trust Agreement

Trust Agreement, the "Agreement", entered into as of , March 26 , 2008 by and between Manor Timber Company, Inc. a Georgia corporation, the "Grantor", and Farmers and Merchants Bank, incorporated in the State of Georgia, the "Trustee".

Whereas, the Department of Natural Resources, Environmental Protection Division, "EPD", an agency of the State of Georgia, has established certain regulations applicable to the Grantor, requiring that an owner or operator of a hazardous waste management facility shall provide assurance that funds will be available when needed for closure and/or post-closure care of the facility,

Whereas, the Grantor has elected to establish a trust to provide all or part of such financial assurance for the facilities identified herein,

Whereas, the Grantor, acting through its duly authorized officers, has selected the Trustee to be the trustee under this agreement, and the Trustee is willing to act as trustee,

Now, Therefore, the Grantor and the Trustee agree as follows:

Section 1. Definitions.

As used in this Agreement:

(a) The term "Grantor" means the owner or operator who enters into this Agreement and any successors or assigns of the Grantor.

(b) The term "Trustee" means the Trustee who enters into this Agreement and any successor Trustee.

(c) The term "EPD" means the Environmental Protection Division of the Department of Natural Resources, State of Georgia.

(d) The term "EPD Director" means the Director of the Environmental Protection Division of the Department of Natural Resources, State of Georgia.

Section 2. Identification of Facilities and Cost Estimates.

This Agreement pertains to the facilities and cost estimates identified on attached Schedule A.

Section 3. Establishment of Fund.

The Grantor and the Trustee hereby establish a trust fund, the "Fund", for the benefit of the State of Georgia. The Grantor and the Trustee intend that no third party have access to the Fund except as herein provided. The Fund is established initially as consisting of the property, which is acceptable to the Trustee, described in Schedule B attached hereto. Such property and any other property subsequently transferred to the Trustee is referred to as the Fund, together with all earnings and profits thereon, less any payments or distributions made by the Trustee pursuant to this Agreement. The Fund shall be held by the Trustee, IN TRUST, as hereinafter provided. The Trustee shall not be responsible nor shall it undertake any responsibility for the amount or adequacy of, nor any duty to collect from the Grantor, any payments necessary to discharge any liabilities of the Grantor established by EPD.

Section 4. Payment for Closure and Post-Closure Care.

The Trustee shall make payments from the Fund as the EPD Director shall direct, in writing, to provide for the payment of the costs of closure and/or post-closure care of the facilities covered by this Agreement. The Trustee shall reimburse the Grantor or other persons as specified by the EPD Director from the Fund for closure and post-closure expenditures in such amounts as the EPD Director shall direct in writing. In addition, the Trustee shall refund to the Grantor such amounts as the EPD Director specifies in writing. Upon refund, such funds shall no longer constitute part of the Fund as defined herein.

Section 5. Payments Comprising the Fund.

Payments made to the Trustee for the Fund shall consist of cash or securities acceptable to the Trustee.

Section 6. Trustee Management.

The Trustee shall invest and reinvest the principal and income of the Fund and keep the Fund invested as a single fund, without distinction between principal and income, in accordance with general investment policies and guidelines which the Grantor may communicate in writing to the Trustee from time to time, subject, however, to the provisions of this Section. In investing, reinvesting, exchanging, selling, and managing the Fund, the Trustee shall discharge his duties with respect to the trust fund solely in the interest of the beneficiary and with the care, skill, prudence, and diligence under the circumstances then prevailing which persons of prudence, acting in a like capacity and familiar with such matters, would use in the conduct of an enterprise of a like character and with like aims; except that:

(i) Securities or other obligations of the Grantor, or any other owner or operator of the facilities, or any of their affiliates as defined in the Investment Company Act of 1940, as amended, 15 U.S.C. 80a-2.(a), shall not be acquired or held, unless they are securities or other obligations of the Federal or a State government;

(ii) The Trustee is authorized to invest the Fund in time or demand deposits of the Trustee, to the extent insured by an agency of the Federal or State government; and

(iii) The Trustee is authorized to hold cash awaiting investment or distribution uninvested for a reasonable time and without liability for the payment of interest thereon.

Section 7. Commingling and Investment.

The Trustee is expressly authorized in its discretion:

(a) To transfer from time to time any or all of the assets of the Fund to any common, commingled, or collective trust fund created by the Trustee in which the Fund is eligible to participate, subject to all of the provisions thereof, to be commingled with the assets of other trusts participating therein; and

(b) To purchase shares in any investment company registered under the Investment Company Act of 1940, 15 U.S.C. 80a-1 et seq., including one which may be created, managed, underwritten, or to which investment advice is rendered or the shares of which are sold by the Trustee. The Trustee may vote such shares in its discretion.

Section 8. Express Powers of Trustee.

Without in any way limiting the powers and discretions conferred upon the Trustee by the other provisions of this Agreement or by law, the Trustee is expressly authorized and empowered:

(a) To sell, exchange, convey, transfer, or otherwise dispose of any property held by it, by public or private sale. No person dealing with the Trustee shall be bound to see to the application of the purchase money or to inquire into the validity or expediency of any such sale or other disposition;

(b) To make, execute, acknowledge, and deliver any and all documents of transfer and conveyance and any and all other instruments that may be necessary or appropriate to carry out the powers herein granted;

(c) To register any securities held in the Fund in its own name or in the name of a nominee and to hold any security in bearer form or in book entry, or to combine certificates representing such securities with certificates of the same issue held by the Trustee in other fiduciary capacities, or to deposit or arrange for the deposit of such securities in a qualified central depositary even though, when so deposited, such securities may be merged and held in bulk in the name of the nominee of such depositary with other securities deposited therein by another person, or to deposit or arrange for the deposit of any securities issued by the United States Government, or any agency or instrumentality thereof, with a Federal Reserve bank, but the books and records of the Trustee shall at all times show that all such securities are part of the Fund;

(d) To deposit any cash in the Fund in interest-bearing accounts maintained or savings certificates issued by the Trustee, in its separate corporate capacity, or in any other banking institution affiliated with the Trustee, to the extent insured by an agency of the Federal or State government; and

(e) To compromise or otherwise adjust all claims in favor of or against the Fund.

Section 9. Taxes and Expenses.

All taxes of any kind that may be assessed or levied against or in respect of the Fund and all brokerage commissions incurred by the Fund shall be paid from the Fund. All other expenses incurred by the Trustee in connection with the administration of this Trust, including fees for legal services rendered to the Trustee, the compensation of the Trustee to the extent not paid directly by the Grantor, and all other proper charges and disbursements of the Trustee shall be paid from the Fund.

Section 10. Annual Valuation.

The Trustee shall annually, at least 30 days prior to the anniversary date of establishment of the Fund, furnish to the Grantor and to the EPD Director a statement confirming the value of the Trust. Any securities in the Fund shall be valued at market value as of no more than 60 days prior to the anniversary date of establishment of the Fund. The failure of the Grantor to object in writing to the Trustee within 90 days after the statement has been furnished to the Grantor and the EPD Director shall constitute a conclusively binding assent by the Grantor, barring the Grantor from asserting any claim or liability against the Trustee with respect to matters disclosed in the statement.

Section 11. Advice of Counsel.

The Trustee may from time to time consult with counsel, who may be counsel to the Grantor, with respect to any question arising as to the construction of this Agreement or any action to be taken hereunder. The Trustee shall be fully protected, to the extent permitted by law, in acting upon the advice of counsel.

Section 12. Trustee Compensation.

The Trustee shall be entitled to reasonable compensation for its services as agreed upon in writing from time to time with the Grantor.

Section 13. Successor Trustee.

The Trustee may resign or the Grantor may replace the Trustee, but such resignation or replacement shall not be effective until the Grantor has appointed a successor trustee and this successor accepts the appointment. The successor trustee shall have the same powers and duties as those conferred upon the Trustee hereunder. Upon the successor trustee's acceptance of the appointment, the Trustee shall assign, transfer, and pay over to the successor trustee the funds and properties then constituting the Fund. If for any reason the Grantor cannot or does not act in the event of the resignation of the Trustee, the Trustee may apply to a court of competent jurisdiction for the appointment of a successor trustee or for instructions. The successor trustee shall specify the date on which it assumes administration of the trust in a writing sent to the Grantor, the EPD Director, and the present Trustee by certified mail 10 days before such change becomes effective. Any expenses incurred by the Trustee as a result of any of the acts contemplated by this Section shall be paid as provided in Section 9.

Section 14. Instructions to the Trustee.

All orders, requests, and instructions by the Grantor to the Trustee shall be in writing, signed by such persons as are designated in the attached Exhibit A or such other designees as the Grantor may designate by amendment to Exhibit A. The Trustee shall be fully protected in acting without inquiry in accordance with the Grantor's orders, requests, and instructions. All orders, requests, and instructions by the EPD Director to the Trustee shall be in writing, signed by the EPD Director or his designee, and the Trustee shall act and shall be fully protected in acting in accordance with such orders, requests, and instructions. The Trustee shall have the right to assume, in the absence of written notice to the contrary, that no event constituting a change or a termination of the authority of any person to act on behalf of the Grantor or EPD hereunder has occurred. The Trustee shall have no duty to act in the absence of such orders, requests, and instructions from the Grantor and/or EPD, except as provided for herein.

Section 15. Notice of Nonpayment.

The Trustee shall notify the Grantor and the EPD Director by certified mail within 10 days following the expiration of the 30-day period after the anniversary of the establishment of the Trust, if no payment is received from the Grantor during that period. After the pay-in period is completed, the Trustee shall not be required to send a notice of nonpayment.

Section 16. Amendment of Agreement.

This Agreement may be amended by an instrument in writing executed by the Grantor, the Trustee, and the EPD Director, or by the Trustee and the EPD Director if the Grantor ceases to exist.

Section 17. Irrevocability and Termination.

Subject to the right of the parties to amend this Agreement as provided in Section 16, this Trust shall be irrevocable and shall continue until terminated at the written agreement of the Grantor, the Trustee, and the EPD Director or by the Trustee and the EPD Director if the Grantor ceases to exist. Upon termination of the Trust, all remaining trust property, less final trust administration expenses, shall be delivered to the Grantor.

Section 18. Immunity and Indemnification.

The Trustee shall not incur personal liability of any nature in connection with any act or omission, made in good faith, in the administration of this Trust, or in carrying out any directions by the Grantor or the EPD Director issued in accordance with this Agreement. The Trustee shall be indemnified and saved harmless by the Grantor or from the Trust Fund, or both, from and against any personal liability to which the Trustee may be subjected by reason of any act or conduct in its official capacity, including all expenses reasonably incurred in its defense in the event the Grantor fails to provide such defense.

Section 19. Choice of Law.

This Agreement shall be administered, construed, and enforced according to the laws of the State of Georgia.

Section 20. Interpretation.

As used in this Agreement, words in the singular include the plural and words in the plural include the singular. The descriptive headings for each Section of this Agreement shall not affect the interpretation or the legal efficacy of this Agreement.

Section 21. Addresses.

Any notice to the parties to this Agreement or to the EPD Director required by this Agreement shall be deemed sufficient if sent by certified U.S. Mail to the appropriate party or to the EPD Director at the following address:

Grantor: Address:	Manor Timber Company, Inc. c/o William Peagler 2611 Heritage Circle Waycross, GA 31501-7675
Trustee: Address:	Farmers and Merchants Bank PO Drawer 629 Homerville, GA 31634-0609
EPD Director: Address:	Carol A. Couch, Director Environmental Protection Division

Department of Natural Resources
2 Martin Luther King Jr. Dr., Suite 1154
Atlanta, Georgia 30334

It shall be the responsibility of each party to notify the other parties in writing of any change to its address stated above.

In Witness Whereof the parties have caused this Agreement to be executed by their respective officers duly authorized and their corporate seals to be hereunto affixed and attested as of the date first above written: The parties below certify that the wording of this Agreement is substantially the same as the wording specified in paragraph 391-3-11-.05 of the Rules of the Georgia Department of Natural Resources, Environmental Protection Division as such regulations were constituted on the date first above written.

[Signature of Grantor]:

William Peagler
Owner and Operator

Attest:

[Title]:

[Seal]:

LISA R. MORGAN
NOTARY PUBLIC
MY COMM. EXPIRES MAR 27, 2010
CLINCH COUNTY, GEORGIA

[Signature of Trustee]:

[Title]: VICE PRESIDENT

FARMERS A[illegible] [illegible]ANTS BAN
978 VALDOSTA HIGHWAY
~~P.O.~~ DRAWER 629
HOMERVILLE, GA 31634

Attest:

[Title]:

[Seal]:

LISA R. MORGAN
NOTARY
MY COMM.
EXPIRES
MAR. 27, 2010
PUBLIC
CLINCH COUNTY, GEORGIA

Certificate of Acknowledgment (must accompany the trust agreement)

State of Georgia

County of Clinch

On this March 26, 2008, before me personally came William F. Peagler to me known, who, being by me duly sworn, did depose and say that she/he resides at 2611 Heritage Circle, Waycross, GA, that she/he is Owner of Manor Timber Company, Inc., the corporation described in and which executed the above instrument; that she/he knows the seal of said corporation; that the seal affixed to such instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said corporation, and that she/he signed her/his name thereto by like order.

(Signature of Notary Public):

Lisa R Morgan

LISA R. MORGAN NOTARY MY COMM. EXPIRES MAR. 27, 2010 PUBLIC CLINCH COUNTY, GEORGIA

Schedule A

For each facility list the EPA Identification Number, name, address, and the current closure and/or post-closure cost estimates, or portions thereof, for which financial assurance is demonstrated by this Agreement:

EPA ID No.:	GAD061921052
Name:	Manor Timber Company, Inc.
Address:	102 Black Ankle Road Manor, Georgia 31550-6002
Current Post-Closure Cost Estimate:	$341,300

<u>Exhibit A</u>

All orders, requests, and instructions by the Grantor to the Trustee shall be in writing, signed by such persons as are designated in the attached Exhibit A or such other designees as the Grantor may designate by amendment to Exhibit A

Authorized Signatory	Title
William F. Peagler	Owner
N/A	
N/A	

SCHEDULE B

The Fund is established initially as consisting of the property, which is acceptable to the Trustee, $380,194.31.

Farmers and Merchants Bank

Lakeland • Nashville • Homerville • Valdosta • Conyers

"Building Relationships and Service Since 1907"

P2

FAXED 03/18/2011

MANOR TIMBER COMPANY
FINANCIAL ASSURANCE TRUST AGREEMENT
102 BLACK ANKLE ROAD
MANOR GA 31550

A FULL SERVICE BANK FDIC

PRIMARY ACCT: 03 [redacted] STATEMENT PERIOD: 02/25/2011 - 03/24/2011

SUMMARY:

ACCOUNT NUMBER	PREVIOUS BALANCE	TOTAL DEBITS	TOTAL CREDITS	SERVICE CHARGE	ENDING BALANCE
DDA [redacted]	402,520.84	.00	1 463.17	.00	402,984.01

MONEY MARKET [redacted] (YEAR-TO-DATE INTEREST: 1,453.86) 24 08/01 02

-- DEPOSITS AND MISCELLANEOUS TRANSACTIONS --

INTEREST PAID	463.17+	03/24
CURRENT INTEREST RATE	1.5000 %	

-- CHECKS --

NUMBER......AMOUNT...DATE NUMBER......AMOUNT...DATE NUMBER......AMOUNT...DATE

-- BALANCE INFORMATION --

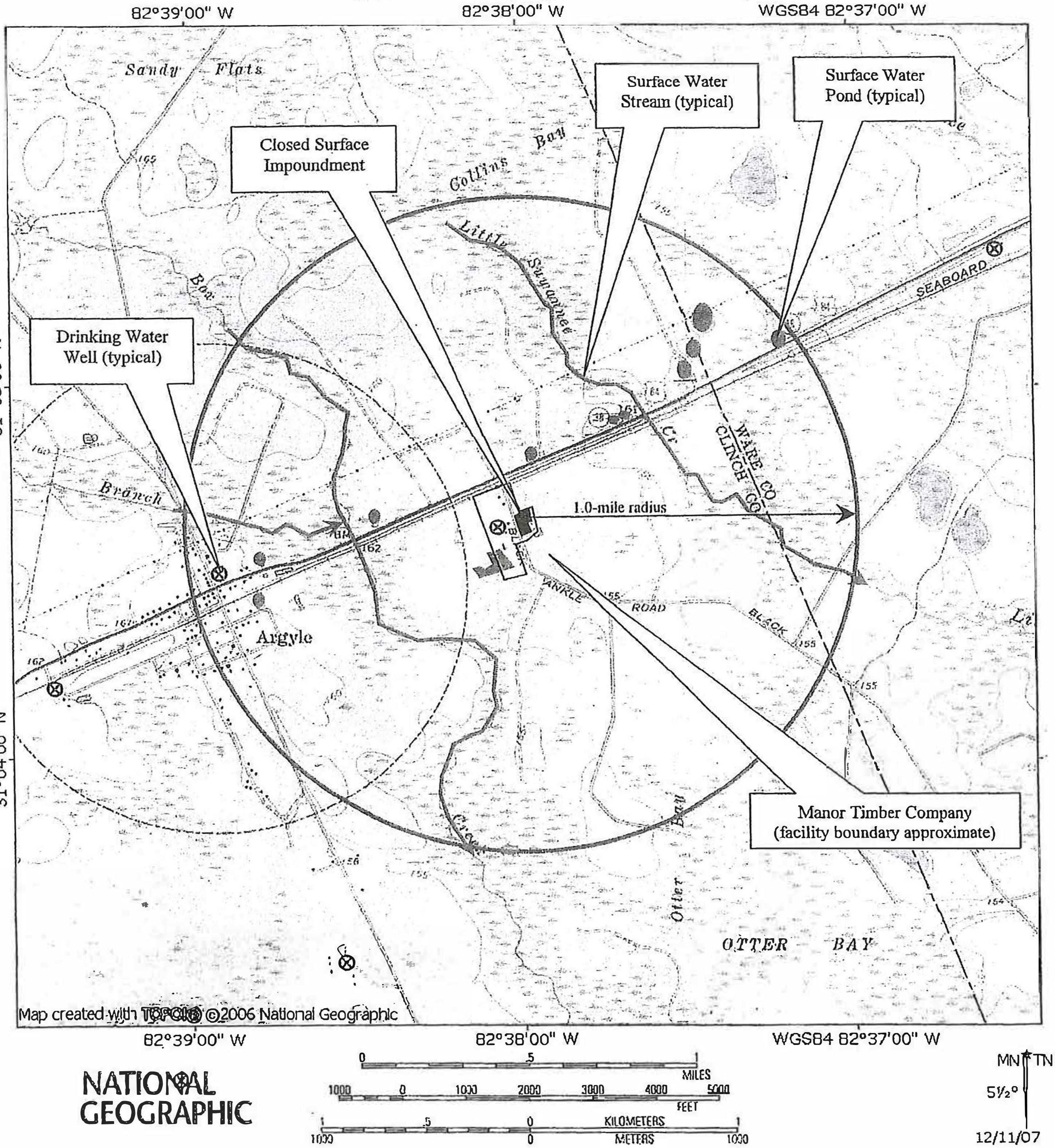
DATE	BALANCE	DATE	BALANCE	DATE	BALANCE
02/24	402,520.84	03/24	402,984.01		

AVERAGE BALANCE FOR THIS STATEMENT CYCLE: $402,520.84

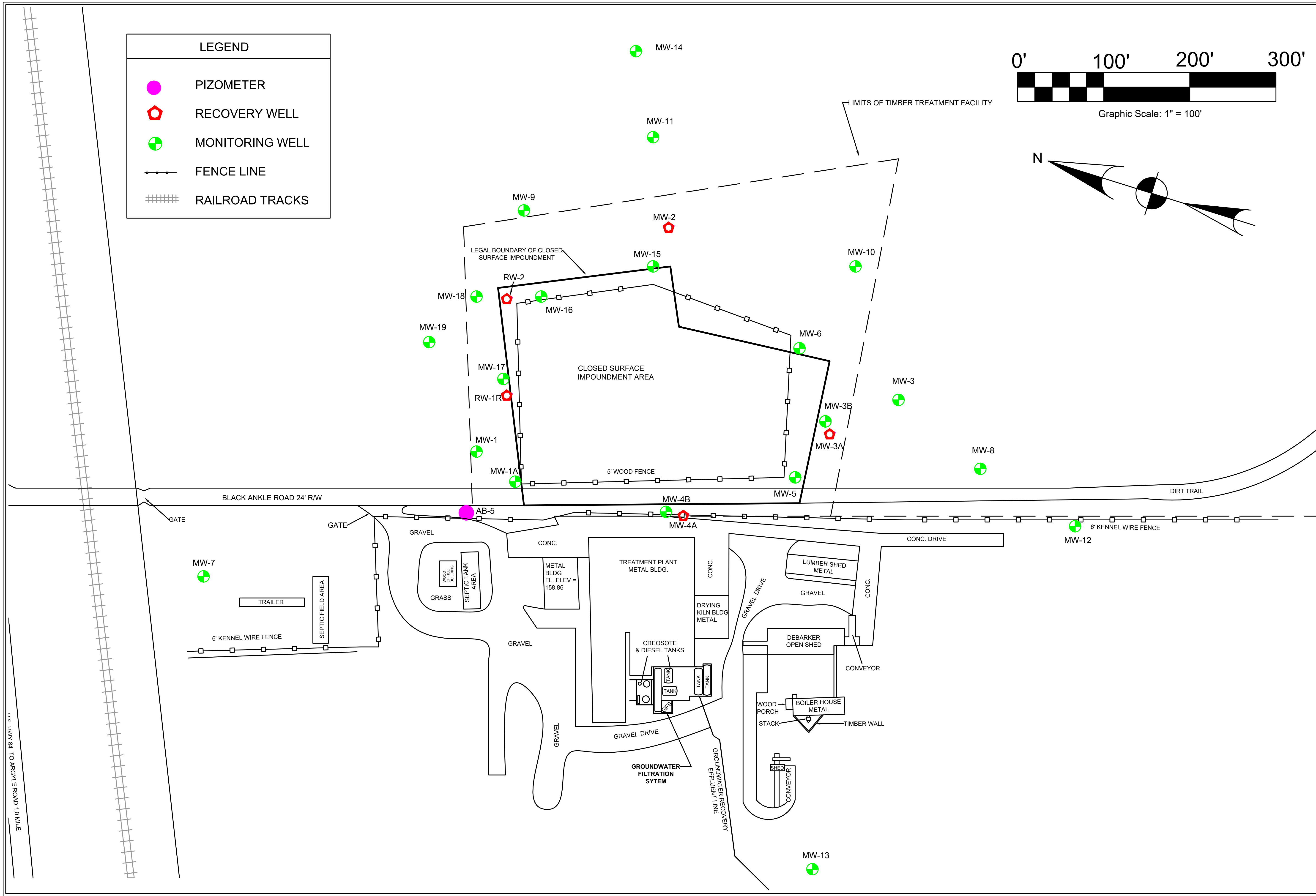
NOTE: SEE REVERSE SIDE FOR IMPORTANT INFORMATION.

www.fmb.net

Map prepared from a copy of the USGS Homerville, East, Ga 1988 7.5 minute Quadrangle.



Envirorisk Consultants, Inc. *PO Box 945* *Grayson, GA 30017*	*FACILITY TOPOGRAPHIC MAP* *MANOR TIMBER COMPANY* *102 BLACK ANKLE ROAD* *MANOR, CLINCH COUNTY, GEORGIA* *GEORGIA HAZARDOUS WASTE PERMIT NO. HW-047 (D)*	*FIGURE* *A-16*



ENVIRORISK CONSULTANTS, INC.

MANOR TIMBER COMPANY
102 BLACK ANKLE ROAD
MANOR, GEORGIA

FACILITY DRAWING

FIGURE NO
A17

View: The activated carbon system was observed within a bermed area located in the center of the facility.

View: MTC facility grounds

View: Recovery well outside of impoundment

View: The interior drying shed for treated poles at the central portion of the facility.

View: Creosote Retort at the central portion of the facility

View: MW-1A

A18. Photographs (Page 1 of 2)

Envirorisk Consultants PO Box 945 Grayson, GA 30017	LEGEND Source: Site visit conducted on September 23, 2016	Manor Timber Company 102 Black Ankle Road Manor, Clinch County, Georgia

View: MW-19

View: MW-18

View: MW-17

View: MW-15

View: Impoundment

View: Treatment barn

A18. Photographs (Page 2 of 2)

Envirorisk Consultants PO Box 945 Grayson, GA 30017	<u>LEGEND</u> Source: Site visit conducted on September 23, 2016	Manor Timber Company 102 Black Ankle Road Manor, Clinch County, Georgia

SECTION B

FACILITY DESCRIPTION

This section provides a general description and overview of the hazardous waste management facility along with a discussion of physical characteristics, as required by 40 CFR 270.15 (b). This description is intended to provide the reader with an overview of the facility.

B-1 General Description (40 CFR 270.14 (b) (1))

Manor Timber Company (MTC) is a small wood treatment company located in Clinch County immediately south of U.S. Highway 84 and 2 miles west of Manor, Georgia. The business was founded in 1968 to process pulpwood. The business expanded in 1972 to wood treatment using either creosote or pentachlorophenol. This activity required the use of an old borrow area as a surface impoundment to hold the wastewater generated by drying wood in the cylinder. In 1983 a dry kiln was built, and the wood was no longer dried in the cylinder. The wood treatment facility is currently active; however, the impoundment has not been used since 1983. Biological treatment was used to clean the waste in the surface impoundment from 1983 to 1988. In 1988, the impoundment was closed as a landfill in accordance with the interim status regulations prescribed at 40 CFR 265.

Raw green pine is delivered to the facility and is debarked and seasoned on-site for use as poles and posts. Seasoning is the air drying of untreated wood. During periods of average sales, the untreated wood is dried outside by normal exposure to the sun and wind. During periods of high sales, the untreated wood is dried in a kiln heated by steam heat produced at the boiler. Milled products, such as landscape timbers and lumber products, are delivered to the site in furnished form and may or may not be seasoned on-site depending on moisture content, the preserving agent to be used, and the intended application for the final product. At no time is seasoning performed by means of a chemical accelerant.

The preservation process consists of either air or kiln drying of the raw wood, followed by pressurized treatment with one of two chemical agents. The drying is done either by kiln or open seasoning. Pressure treating operations are carried out in two large cylindrical vessels. The two chemical wood treatment agents used at MTC are creosote and a CCA (chromated-copper- arsenate) solution.

The facility uses two drip pads for freshly treated wood products to ensure that waste in the form of preservative drippings. are properly managed. The drip pad system includes concrete tramways located in front of the treatment cylinders, building curbs and interceptor pits/collection sumps. The drip pads are located inside the treatment building. Most dripping is done inside the cylinders after treatment.

Treated wood is then moved to the drip pad and held until dripping cessation has been confirmed by operations personnel. The drip pads are swept clean weekly by facility personnel. The drip pads are pressure washed not more than 4 times a year. Wash water from the CCA drip pad is returned to the CCA work tank. CCA sludges and solid material including treated wood debris is removed from the drip pad and stored in a labeled drum as hazardous waste. Wash water, sludges and solids including treated wood debris from the creosote drip pad is removed from the drip pad and stored in a labeled drum as hazardous waste. Drip pad wastes are periodically removed by a third party contractor for appropriate disposal. Annual certification of the drip pads is performed by a third party Professional Engineer.

B-2a <u>Topographic Map (40 CFR 270.14 (b) (19))</u>

Figure B-1 is a topographic map of the MTC drawn to a scale of 1 inch = 100 feet with a one foot contour interval. The terrain is extremely flat with only about 8 feet of relief over the entire site. Mean sea level elevations on the site range from a high of about 163.0 near the center of the site to a low of about 155.0 near the southern boundary.

There are two principal drainage features in the vicinity of the site which include Box Creek to the west and Little Suwanee Creek to the east. Box Creek and Little Suwanee Creek both generally flow from the northwest toward the southeast. The facility and closed surface impoundment are located slightly closer to Box Creek to the south/southwest than Little Suwanee Creek to the east/southeast. The general drainage pattern in the vicinity of the site is to the south/southwest towards Box Creek.

Figure B-2 is a topographic map prepared from a copy of the U.S.G.S 7.5 minute Homerville East 1988 quadrangle. The general topographic setting of the facility and surrounding area are shown on this map. The two principal drainage features with respect to the facility are also identified as Box Creek to the west and Little Suwanee Creek to the east. Little Suwanee Creek emerges from a series of wetlands approximately one mile northwest of U.S. Highway 84. Box Creek emerges from a series of wetlands more than three miles northwest of U.S. Highway 84 and is also joined by a tributary known as Polly Branch just north of U.S. Highway 84. Box Creek is considered the dominant drainage feature in the vicinity of the facility because it exhibits a much larger drainage basin.

Because Box Creek is the dominant drainage feature for the site, the hydrology of Box Creek was used in the floodplain determination for the facility discussed in the following section. The following paragraphs present information of the plant facilities in accordance with the requirements of 40 CFR § 270.14(bX19), using **Figures B-1, B-2, B-3** and other included information as reference.

100-Year Floodplain Area

A review of a 2009 FEMA National Flood Insurance Rate Map indicates the facility and surrounding areas are located outside of the 100 year flood plain boundary in the FEMA Flood Zone designation “Zone X”. Zone X is defined as areas of 0.2% annual chance of flood; areas of 1% annual chance of flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual change of flood. Box Creek to the south is the dominant drainage feature in the vicinity of the site. A copy of a current FEMA map and the National Flood Hazard Layer FIRMette are provided in **Appendix B1**. The site is marked with a red asterisk on the map.

Surrounding Land Use

Land use surrounding the MTC plant site consists of undeveloped timberland. The nearest development is approximately 0.75 miles west and approximately 2.0 miles east along U.S. Highway 84. This development consists of low-density residential land use on the outskirts of the cities of Argyle and Manor (see **Figures B-1 and B-2**).

Surface Waters

There are no surface waters or intermittent streams located on or immediately adjacent to MTC other than borrow areas used for fill which are now identified as ponds (see **Figures B-1 and B-2**). The nearest surface water streams are Box Creek, located approximately 0.5 miles west of the plant site, and Little Suwannee Creek, located about 0.5 miles east of the site. Both of these creeks flow in a general southeastern direction in the vicinity of the site (see **Figure B-2**).

Because of the fine, sandy soils present on the plant site, virtually all stormwater immediately percolates into the shallow groundwater, and little, if any, runoff is generally experienced. During heavy rainfall periods however, it is possible for some limited, short-term surface runoff to occur. Several shallow east/west drainage swales have been constructed on the site to control stormwater. These swales carry surface drainage to the west where it is picked up by a collector channel running in a north-south direction. Some runoff discharges either into the drainage canal paralleling the railroad right-of-way or moves in a southernly direction and eventually discharges into Box Creek through a series of wetlands.

Wind Rose

Figure B-3 illustrates a wind rose, compiled from data supplied by the National Climatological Center in Asheville, North Carolina. The data is based on surface observations made at the National Weather Service station in Alma, Georgia, located about 35 miles northeast of the MIC site. A total of 14,547 observations were made during the period 1954 to 1958. The prevailing wind was reported to be out of the southwest at 7.6 knots.

Access Control

Five gates, including the main gate, the rear gate, and three interior gates, control access to the MTC plant. The main gate controls all ingress and egress to the property at the entrance to Black Ankle Road from U.S. Highway 84. There is no other entrance or exit to the site. The rear gate is located on Black Ankle Road south of the facility and is locked at all times. One interior gate is located near the plant office, one is located by the treatment building, and the other interior gate is located adjacent to the drying kiln (see **Figure B-1**). All gates except for the rear gate are kept open during normal business hours but are locked at night and on weekends.

The closed surface impoundment is located across Black Ankle Road from the main plant site and is fenced around its entire periphery to prevent both vehicular and pedestrian traffic from gaining access. A gate is located on the north side of the impoundment to allow company personnel easier access to make detailed inspections of the facility. This gate is kept locked at all times.

A watchman is on duty 24 hours per day at the site. The watchman provides additional access control to the property.

Black Ankle Road is a Clinch County maintained road. The road is gated at the entrance from U.S. Highway 84 at the MTC facility and is gated southeast of the MTC facility. The gate at U.S. Highway 84 is open from approximately 7:00 am to 5:00 pm Monday through Thursday and from 7:00 am to 1:00 pm on Friday. The gate is locked at all other times. The gate located southeast of the MTC facility is locked at all times. Clinch County officials, MTC and local landowners with real estate interests on Black Ankle Road have keys and therefore access to the Black Ankle Road gates. General public access to the MTC facility is prohibited and prevented by the two gates located on Black Ankle Road north and south of the MTC facility.

Injection and Withdrawal Wells

There are no known injection wells in the vicinity of the MTC site.

There is one existing withdrawal well located on the MTC site. The well is located near the maintenance shop, and it is used as a source of potable water for plant facilities. The well is approximately 400 feet deep and uses the Floridan Aquifer, also known as the Principal Artesian Aquifer, as its source of water supply.

Previously there were two other withdrawal wells located at the MTC facility. One of the wells was located near the boiler, and the other well was located near the old house, located north of the mobile home shown on **Figure B-1**. The two wells were constructed as shallow sand wells approximately 20 feet deep.

The well near the boiler was used for boiler make-up water and the well near the watchman's house was used for watering lawns and the garden. Both of these shallow wells were constructed prior to 1983 and were no longer in use by 1993. It is not known how these wells were closed.

The nearest water supply well to MTC is known as the Argyle city well. The Argyle city well is located 0.9 miles west of the closed surface impoundment. This well is 600 feet deep and draws water from the Floridan Aquifer.

All residences in the Argyle city limits are on city water, except for one trailer located on the west side of the town. This trailer has its own deep well. There are several other water supply wells located southeast of Argyle. One of these is located at the "Bridges of Hope", an alcoholic rehabilitation center. Adjacent to this facility is the "Barlow Creosoting" Hazardous Site #10191. Additionally, private wells are located approximately 2.0 miles east of the MTC facility along U.S. Highway 84. These wells serve single-family residences. It is believed that all of these supply wells obtain groundwater from the Floridan Aquifer.

Figure B-1 displays the location of the on-site supply well. **Figure B-2** shows the locations of the supply wells identified in the site vicinity.

Building and Structures

The location of primary buildings and structures are illustrated on **Figure B-1**. Buildings consist of an office, a maintenance shop, the treating facility (which houses the pressure vessels and drip pads), a drying kiln, and a boiler building. Protective, open-air shelters have also been installed over the post mill and pole mill facilities, the apron area in front of the treatment cylinders (kick-back area), and adjacent to the cylinders for storing creosote treated wood. Bulk storage tanks for concentrated chemical, make-up solutions and diesel fuel are located adjacent to the treating facility. These tanks are either vertically resting on concrete pads or horizontally resting on concrete saddles. The entire area under and around these tanks consists of a concrete pad and dike system designed to contain spills and prevent the contamination of soils and ground water.

Sewers

There are no sanitary, storm or combined sewers located on or in the vicinity of the MTC plant site. A septic tank and drain field system is in use at the office and a septic tank and drainfield system is in use at the mobile home. The office system is located behind the office to the east. The mobile home septic tank and drain field is located adjacent to and east of the mobile home. The septic systems are shown on **Figure B-1.**

Seismic Information

Because the MTC plant is an existing facility, rather than a new facility, the seismic standard referenced in 40 CPR § 270.l 4(b) (i) and (ii) does not apply.

Floodplain Standard

A review of a 2009 FEMA National Flood Insurance Rate Map indicates the facility and surrounding areas are located outside of the 100 year flood plain boundary in the FEMA Flood Zone designation “Zone C”. Zone C is defined as an area of minimal flood hazard with a less than one percent chance for annual flooding. The site is marked with a red asterisk on the map.

Box Creek to the south is the dominant drainage feature in the vicinity of the site. A copy of a current FEMA map and the National Flood Hazard Layer FIRMette are provided in **Appendix B1**.

Security Procedures

According to 40 CPR § 264.14(a) of the hazardous waste regulations, the owner of a hazardous waste management facility must prevent the unknowing entry, and the possibility of unauthorized entry of persons or livestock onto the active portion of the facility. This can be accomplished by one of two means- a 24 hour surveillance system, or an artificial or natural barrier. MTC complies with the latter means of providing security.

Presently a gate secures the entire entrance to the facility on Black Ankle Road from Highway 84. In addition, the active portion of the facility (treatment area, office, kiln, pole debarker) is separately fenced with gates locked during off duty periods. There is also a 24 hour watchman on duty who lives in the mobile home near the gate. The closed surface impoundment has a wooden and barbed wire fence that completely surrounds the area.

The fence is approximately five feet high and consists of four horizontal planks with barbed wire strands. The fence has a single entrance on the north side which is kept locked at all times when not in use. The closed surface impoundment fence was expanded to encompass additional areas of the surface impoundment identified during follow-up investigations. All interior fence posts were removed from the surface impoundment cap and the post holes were backfilled and compacted to cap specifications.

As specified in the regulations, warning signs are posted on the fence on both the north and south sides. The signs read as follows: "Danger Unauthorized Personnel Keep Out". The signs are approximately 1.0 feet square and can be easily read at a distance of 25 feet.

General Inspection Schedule

Inspection information is required by 40 CFR § 270.14(b)(5). MTC performs inspections of the hazardous waste management portion of the facility on a regular basis. The inspections are conducted routinely by qualified plant personnel, and adequately meet the requirements of 40 CFR 264.15(b). The current schedule for testing and maintenance of all monitoring equipment, safety and emergency equipment, security devices and operating and structural equipment is provided below.

Process Equipment including creosote, CCA, and diesel product and/or work tanks, lines, valves and treatment cylinders are inspected daily for evidence of normal operation or leaks, cracks, corrosion, deterioration and other signs of potential failure.

The groundwater treatment system including groundwater extraction ·pumps, lines, valves and groundwater filtration system consisting of granular activated carbon canisters are inspected daily for evidence of normal operation or leaks, cracks, corrosion, deterioration and other signs of potential failure. The groundwater filtration system is also tested daily for phenol breakthrough.

The containment dike surrounding the creosote, CCA and diesel tanks as well as the groundwater treatment system is inspected daily for structural deficiencies including cracks and signs of deterioration or erosion.

The final cover for the closed surface impoundment is inspected monthly for evidence of erosion, deterioration, and presence of vegetative cover to prevent erosion. Inspections are also conducted as soon as practicable after a major storm event (i.e., a 1-year storm event; an event producing greater than 2-inches of rain per hour for a minimum of one hour).

Site control measures including locking gates are inspected and used daily.

The drum storage area is inspected weekly for evidence of leaks, failing container systems and signs of deterioration.

Fire safety, spill control, facility communications and decontamination equipment including high pressure water hoses, diesel front-end loaders, two-way radios and land-line telephones are in use daily at the site. This equipment is ready at all times for response to a fire, spill control and other hazardous or emergency response needs.

The drip pads are inspected weekly by facility personnel for evidence of cracks, deterioration, or leaks. The drip pads are also inspected annually and certified by a third party Professional Engineer for compliance.

Groundwater monitoring equipment including monitoring wells, concrete pads and locking well-head protective devices are inspected monthly.

The findings of these inspections and observations will be recorded in the appropriate field forms and maintained in the facility operation record.

Facility Location Information

MTC is located in Clinch County, Georgia. The facility is located in a rural area and does not lie within an incorporated Township or City.

Notice Documentation

Documentation that notices have been filed for hazardous waste disposal units that have been closed in accordance with 40 CFR 264.119 is included in **Appendix B6**.

Post-Closure Cost Estimate/Financial Assurance

The Post-Closure Cost Estimate and Financial Assurance documents required by 40CFR§270.14(b)(l6) are included in **Appendix B2**. The most recent statement of Manor's trust fund is also contained in **Appendix B2**.

CORRECTIVE ACTION PROGRAM

Objectives of Corrective Action Program

The objective of the corrective action program for the subject facility is to remove hazardous waste constituents found in the groundwater so as not to exceed their concentration limits at the compliance point. This action will result in preventing further migration of hazardous constituents from the closed surface impoundment as well as to capture contaminants which have already migrated from the closed surface impoundment.

Groundwater Monitoring System

Description of System

The facility, closed surface impoundment and groundwater monitoring and recovery system are shown on **Figure B-1**.

The groundwater monitoring system includes MW-1, MW-1A, MW-3, MW-3B, MW-4B, MW-5, MW-6, MW-7, MW-8, MW-9, MW-10, MW-11, MW-12, MW-13, MW-14, MW-15, MW-16, MW-17, MW-18 and MW-19. Wells MW4B, MW-5, MW-6, MW-15, MW-16 and MW-17 are the point of compliance (POC) wells installed along the boundary of the closed surface impoundment.

The details of well installation methods and well logs for the groundwater monitoring system are provided in **Appendix B3**. One additional monitoring well (MW-20) is proposed approximately 150 feet northeast of MW-18 and north of MW-9 (**Figure B-4**).

Ground Water Flow and Rate

Contouring of data during the last 15 years has shown only minor variations due to rainfall variations. Contours for July 2005, July 2006, October 2017, May 2019, and June 2022 are included as **Figures B-5, B-6, B-7, B-8, and B-17**.

Prior to the installation of RW-2, a gradient to the northeast appeared to exist. After installation of RW-2 there appears to be a slight depression created by pumping of RW-2 (**Figure B5**). This depression "moves" slightly from one event to another but generally encompasses the northeast comer of the closed surface impoundment. This depression is illustrated on **Figure B5**. Typically, there is flow away from the closed surface impoundment toward the east and northeast. For additional reference, A discussion of historical groundwater flow and rate between 1991 and 1996 is provided in **Appendix B4**. Since 1996, the flow appears to have somewhat stabilized as precipitation has generally decreased. The adjacent areas north, east and south of the closed surface impoundment were previously thickly wooded and have now been cleared.

It is likely that the clearing will have somewhat of an effect on the groundwater flow directions in this area over time. In any case, the very swampy conditions with standing water previously found around the eastern side are now only rarely seen. The former wet area shown east of the southeast corner is now dry and has been for years. **Table B2** includes a summary of groundwater level elevations from January 1999 to May 2019.

The July 2006 groundwater contours (**Figure B-7**) shows flow from the closed surface impoundment in a generally northeasterly direction; however, the gradient varies from 0.00015 to the east (MW-13 toward MW-4B) to 0.0170 toward the northeast (MW-16 to MW-9). The maximum difference in water levels across the site was only 3.29 feet. The highest water levels were measured at MW-13, MW-4B, MW-5, and MW-7, all along the western margin of the site.

The lowest measured water levels were along the northeast where MW-9 found the lowest reading (149.06 msl) and MW-11 (adjacent to MW-9) at 149.78 msl. The July 2006 interpretation is somewhat changed from several previous ones which showed a depression around the area of the northeast corner of the closed surface impoundment. The area experienced a significant decrease in rainfall prior to July 2006, especially in the six months prior where the average rainfall was 12.45 inches. It is believed that this decrease in rainfall, along with the clearing of the wooded area and pumping of RW-1R and RW-2 caused this change in the contours (no depression).

The average horizontal groundwater flow was calculated using data collected during the May 2019 sampling event. Calculations were performed using the following formula taken from Darcy's equation for fluid flow through a porous medium:

$$Vh = \left[\frac{K \frac{dh}{dl}}{n} \right]$$

Where:

K = the average hydraulic conductivity of 3.25 feet per day (ft/day);

dh/dl = the hydraulic gradient measured as the hydraulic head distance between up-gradient well MW-5 and down-gradient well MW-9, divided by the measured distance between the wells, equaling 0.008 ft/ft; and

n = an estimated effective porosity of 25% or 0.25 (historical sources).

Using this formula, an average horizontal groundwater flow velocity of **0.104** ft/day or **38.0** feet per year (ft/year) was calculated. A previous horizontal flow velocity was calculated in 1995 at 14.2 ft/year using these assumed values.

This calculated value assumes groundwater flow occurs through a homogeneous, isotropic, porous medium and should be considered as an estimate only. Since flow directions are sometimes reversed and/or radial, a constant gradient should not be assumed.

Well Locations

Wells MW-4B, MW-5, MW-6, MW-15, MW-16 and MW-17 were earlier identified as the POC wells. MW-7 is the upgradient well. MW-3B is a deep monitoring well which monitors the underlying aquifer. MW-1, MW-1A, and AB-5 are not sampled and are used only for groundwater level data. Wells MW-8, 9, 10, and 11 are all sentinel wells which are located south and east of the closed surface impoundment to detect movement in these directions. Wells MW-12, MW-13 and MW-14 are "second line" sentinels. MW-19 was the last monitoring well installed (September 1998) to specifically monitor movement beyond MW-18. **Figures B-1** and **B-4** displays well locations. An additional well (MW-20) is proposed for installation northeast of MW-18 and north of MW-9 (**Figure B-4**). It is also proposed that the piezometer AB-5 be closed in accordance with the Water Well Standards Act.

AB-5 should be closed because the groundwater level from this piezometer is no longer necessary due to the extensive groundwater monitoring network currently in place at the site.

Hazardous Constituents Identified

The initial sampling and analysis plan included those constituents listed in Part 264, Appendix VII K001. Appendix IX analyses later performed on the compliance wells identified additional constituents, which were added to the Constituents of Concern (COCs) in the Ground Water Protection Standard (GWPS). These constituents are shown on **Table B1**.

Plume Description

Selected K001, volatile and semi-volatile plume maps are included as **Figures B-9** through **B-16, B-18, and B-19** for 2005-2019. Earlier plume maps do not greatly differ from the later representations in the lateral dimensions, but the level of contamination has dropped significantly over time. For example, on the January 1998 map, MW-3 exhibited 120 µg/l (K001) while in July 2006, there was no contamination detected at the laboratory detection limits. The highest K001 level detected was 7,190 µg/l (MW-17, January 1998) as opposed to 2,031 µg/l detected in MW-17 in the July 2006 representation, a substantial decrease. These differences vary from event to event but a general decrease in magnitude has been observed everywhere except possibly at MW-16 and MW-18. The volatile plume has decreased both in lateral extent and in contaminant levels. MW-11 and MW-15 have recently shown some detections causing expansion or contraction of the zero isoconcentration depending on whether any volatiles are detected.

A review of the horizontal extent of VOCs maps for 2017, 2019, and 2022 (**Figures B13, B15,** and **B18)** indicate the presence of one dissolved plume with highest concentrations on the northern side of the impoundment. The highest total VOC concentrations for all three events was detected in MW-16 at 1,511 µg/l in October 2017, at 1,439 µg/l in May 2019, and at 2,703 µg/l in June 2022. The plume is approximately 400 feet in length primarily covering the closed surface impoundment. The extent of VOCs is delineated to non-detect concentrations by MW-9/MW-19 to the north, MW-10/MW-11 to the east, MW-5/MW-8 to the south, and MW-7 further to the west.

A review of the horizontal extent of SVOCs maps for 2017, 2019, and 2022 (**Figures B14, B16,** and **B19)** indicate the presence of one dissolved plume with highest concentrations also on the northern side of the impoundment, similar to the extent of VOCs. The highest total SVOC concentrations for all three events was detected in MW-17 at 4,207 µg/l in October 2017, at 2,994.4 µg/l in May 2019, and at 9,011 µg/l in June 2022. The plume is slightly larger than the VOC plume and stretches approximately 450 feet in length, primarily covering the closed surface impoundment.

The extent of SVOCs is delineated to non-detect concentrations by MW-9/MW-19 to the north, MW-10 to the east, MW-5/MW-8 to the south, and MW-7 further to the west.

Figures B16 and **B19** display a slightly larger dissolved plume when compared to **Figure B14** due to the detection of SVOCs in MW-11, located east of the impoundment. MW-11 was non-detect during the October 2017 event; however, this well has historically contained SVOCs.

Concentration vs. Time Graphs

Historical data from selected sampling events between 1996-2006 are plotted on **Graphs 1-6,** created by a previous consultant. These graphs illustrate the variations in contaminant levels for this period and are useful for evaluating the effectiveness of the recovery system in decreasing contaminant levels.

The total K001 constituents for each event are shown on all the graphs, while Graphs 5 and 6 show both total K001 and total volatile COCs detected. Individual descriptions are provided below.

Graph 1 (MW-3) - This graph shows an almost continuous decline in K001 (naphthalene) from January 1996 through July 2006. No volatiles have been detected.

Graph 2 (MW-4B) - From January 1996 to July 2002 there was a downward trend from over 3,000 µg/L to about 400 µg/L. Since then, the levels have varied between 500 µg/l and 1,000 µg/L and have averaged about 750 µg/L as opposed to an average of 1,675 µg/l before July 2002.

Graph 3 (MW-11) - This graph is more erratic than the first two but does show lower average levels from July 2002 through July 2006. During this period, six events detected no contamination with the highest level during this period of 300 µg/L. The average prior to July 2000 was 291 µg/L. The average between July 2000 and July 2006 was 69 µg/L.

Graph 4 (MW-15) – This graph shows varying concentrations of K001 ranging from a low of approximately 34 µg/L in 2006 to a high of 386 µg/L in 1996. Concentrations in MW-15 are lower than others in the sampling network.

Graph 5 (MW-17) - Prior to January 2002, this well had the highest K001 concentrations in the well system (11,520 µg/L, July 1999). Since that time the K001 levels have declined, and contamination has somewhat leveled off between a low of 920 µg/L (July 2004) and 3,256 µg/L (January 2006) with an average of 2,302 µg/L between January 2002 and July 2006. The volatile results appear to be stable at approximately 300 µg/L to 400 µg/L.

Graph 6 (MW-18) - Between January 1997 and July 1999, this well was stable at a K001 level just above 200 µg/L. Between July 1999 and January 2004, the K001 contaminant level climbed to a high of 1,372 µg/L.

In July 2004 the contaminant level dropped to 710 µg/L and then rose to 1,319 µg/L in January 2006. Volatiles also increased between January 1997 and July 2003, then were sporadic between July 2003 and July 2006, with the highest concentration of 581 µg/L in July 2004.

As can be seen on **Graphs 1-6,** most of the previously contaminated wells are exhibiting a decrease in contaminant levels (MW-3, MW-4B, MW-15), are stable (MW-17) or have mixed results (MW-11). MW-16 and MW-18 are the only wells possibly exhibiting increasing contaminant levels.

Concentration versus time graphs were updated in 2017 due to the transfer of the site to a new consultant. Graphs were prepared for SVOCs to evaluate the significance of concentration trends over time (**Graphs 7-13**). Due to the low levels of VOCs detected, graphs were not prepared for VOCs. SVOC concentration versus time graphs were prepared for the following 7 wells: MW-3, MW-4B, MW-11, MW-15, MW-16, MW-17, and MW-18. The other wells sampled had non-detect concentrations, therefore trend graphs were not included.

A review of the graphs indicates overall decreasing trends for MW-4B, MW-16, MW-17, and MW-18. Increasing trends in SVOC concentrations were observed in MW-11, MW-15, MW-7B, MW-12, and MW-12A. MW-3 indicated non-detect concentrations, consistent with recent sampling events. All increases and decreases appear consistent with historic trends.

Ground Water Protection Standard (GWPS)

The initial GWPS was the Part 261 Appendix VII list of K001 constituents plus the five volatiles identified in the initial investigations. During the periodic sampling events, five additional semi-volatile COCs were detected during the annual Appendix IX analysis of the compliance wells. These COCs have been added to the original list giving a total of 29 semi-volatile COCs.

Additionally, ten volatiles have been historically detected at the facility and are included in the present list of constituents identified in the Ground Water Protection Standard for the site. Metals including arsenic, barium, chromium, lead, vanadium and zinc have been detected during Appendix IX sampling. The maximum concentration of these constituents observed were arsenic = 0.031 mg/L, barium = 0.46 mg/L, chromium = 0.11 mg/L, lead = 0.014 mg/L, vanadium= 0.023 mg/L and zinc= 0.14 mg/L.

These metals have not been added to the GWPS list because they are known not to have been part of the former process of the closed surface impoundment and have been deemed likely a result of suspended sediment contained in the groundwater sample analyzed. The present list of GWPS constituents is included as **Table B1**.

Table B3 was prepared by the previous consultant and is included for historical reference only. **Tables B4 and B5** contain all the tabulated data for VOCs and SVOCs. These tables show the variety and contaminant levels of the GWPS constituents detected during the sampling events conducted from January 1998 through 2019.

This data was used to construct the graphs discussed above. In accordance with Part 264.99, additional COCs may be periodically added to the GWPS if detected during the annual Appendix IX analysis.

Corrective Action Plan

Ground Water Recovery System

The recovery system became operational on April 23, 1994. It originally consisted of three recovery wells and a two-line granulated activated carbon (GAC) system. The system was expanded in October 1997 by installation and addition of RW-1R to the groundwater extraction system. The system was further expanded in November 2002 by the installation and addition of RW-2 to the groundwater recovery system. In 2002 the system included 5 total recovery wells, and a 4-line GAC system for treatment. Currently one only carbon canister is utilized to minimize possible leaks.

Previous reports documented that over 12-million gallons of recovered ground water were treated and disposed of between February 2000 and July 2006 (averaging 2-million gallons per year). Pump reports for 2019-June 2022 are attached as **Appendix B7** and document recovered groundwater by well in gallons.

A new recovery well (RW-3) is planned to replace MW-4A, one of the original recovery wells. This well has apparently been clogged, either by clay or another biological obstruction, and has not been operational.

It was originally planned to use treated groundwater for process make-up water; however, it has been found that disposal after treatment is a more efficient option. The effluent is now discharged after treatment to an isolated on-site pond, which has no discharge to surface waters. This disposal option was discussed prior to its use with EPD personnel.

During the past 10-year period, no breakthrough occurred of phenols, pentachlorophenol, or naphthalene in the effluent. Testing of the effluent was conducted daily by plant personnel and was sampled during each semi-annual event. During the period, maintenance and repairs/replacements have occurred as required, Inspection of the system is done daily by plant personnel and these reports are included in each semi-annual report submitted.

Proposed Modification to System

The amount of ground water recovered has not been as efficient as planned. Aquifer testing indicated that MW-3A and MW-4B would produce approximately 3-gallons per minute (gpm); however, based on **Table B6** for the February through July 2006 period, MW-3A was the highest single well producer at 2.43 gpm in February 2006.

Low recovery rates prompted an attempt to increase the recovery of RW-1R in July 2006. The pipe was pulled out and the foot valve intake found to be partially blocked by a gray gelatinous matter. It is believed that this may explain the low production from this well.

Presumably, the screen may be blocked by this bio-mass. Inoculation with a phosphate clay dispersant followed by development with air did not increase the recovery rate. With EPD's concurrence, other methods to improve the recovery may be attempted.

As was noted, recovery well MW-4A has gradually decreased in flow to a condition that the pump could not be kept primed. MTC has agreed to replace this well and discussed the location and installation with EPD's geologist during the July 2006 inspection. This proposed well (RW-3) will be installed adjacent to MW-4B. The depths, construction, etc. will be similar to RW-2 (see log RW-2 in **Appendix B3** for construction details). It is also planned to increase the recovery rate at RW-2 since this area is the only area where there is possible migration from the closed surface impoundment. See **Figure B-4** for the proposed location of RW-3.

Monitoring Frequency

The area of highest levels of contaminants is the northeast comer of the closed surface impoundment. The southern area is either non-detect (MW-3B, MW-5, MW-6, MW-8, MW-10 and MW12) or with low decreasing minor contamination (MW-3). COCs have not detected in adjacent wells MW-9 and MW-19. For these reasons, the monitoring plan is designed to detect any further movement in a northeasterly direction. MW-20 (proposed well) will be located approximately 150 feet northeast of MW-18 and north of MW-9.

All wells will be analyzed for the GWPS except Group II (the annual group). The annual group will include the Appendix IX (without dioxins) on one well biennially.

No dioxins are planned for the analyses since none have been detected in the past ten years. The Appendix IX will be conducted on a rotation basis between MW-4B, MW-15, MW-16, and MW-17. This monitoring program will provide the data needed to determine the effectiveness of the corrective action system.

Group 1: Semi-Annual

Group1 includes sentinel wells near the northeast and eastern portion of the closed surface impoundment that will provide evidence of effectiveness of corrective action program and/or any migration from closed surface impoundment. Monitoring wells in Group 1 include MW-4B, MW-9, MW-11, MW-15, MW-16, MW-17, MW-18, MW-19 and MW-20 (proposed). These wells will be analyzed for the GWPS.

Group 2: Biennial (Appendix IX)

Group 2 wells are compliance wells along the contaminated boundary of the closed surface impoundment. An Appendix IX (without dioxins) analyses will be conducted at one of these wells every other year on a rotary basis. These wells include MW-4B, MW-15, MW-16 and MW-17.

Group 3: Biennial

Group 3 wells are located along the southern portion of the closed surface impoundment and which either have never shown contamination or have shown little or no contamination. Wells in Group 3 include MW-3, MW-3B, MW-5, MW-6, MW-7, MW-8, and MW-10. These wells will be analyzed for the GWPS constituents.

Group 4: Water Levels Only

Wells that historically have shown no evidence of contamination including, MW-1, MW-1A, MW-12, MW-13, and MW-14 will not be sampled. Water level measurements only will be taken at these locations.

Analysis Schedule

Group 1 and Group 3 wells will be sampled and analyzed for the Groundwater Protection Standard constituents identified in **Table B1**.

Group 2 wells be analyzed for the Georgia Appendix IX constituents (less dioxins) biennially on a rotary basis. A copy of the Georgia Appendix IX is included in **Appendix B5**.

Determination of Effectiveness

The most useful data to determine effectiveness of the corrective action system is the comparison of the new data with the past data. This is most apparent in trends observed on the concentration-time graphs prepared either semi-annually and/or annually for those wells located around the northern portion of the closed surface impoundment. The corrective action system, when modified as proposed, will increase the ground water recovery rate ensuring that no contamination is moving outward from the closed surface impoundment.

MANOR TIMBER COMPANY
102 BLACK ANKLE ROAD
MANOR, GEORGIA 31550
HAZARDOUS WASTE PERMIT NO. HW-047(D)

TABLE B1. GROUNDWATER PROTECTION STANDARD CONSTITUENTS		
K001 ANALYTES EPA METHOD 8270		VOLATILES EPA METHOD 8260
1	Acenaphthene	Acetone
2	Acenaphthylene	Benzene
3	Anthracene	Ethylbenzene
4	Benzo(a)anthracene	2-Hexanone
5	Benzo(a)pyrene	Methyl Ethyl Ketone
6	Benzo(b)fluoranthene	4-Methyl-2-pentanone
7	Benzo(k)fluoranthene	m-Xylene & p-Xylene
8	Carbazole	o-Xylene
9	2-Chlorophenol	Toluene
10	Chrysene	Vinyl Chloride
11	Dibenz(a,h)anthracene	
12	Dibenzofuran	
13	2,4-Dimethylphenol	
14	2,4-Dinitrophenol	
15	2,4-Dinitrotoluene	
16	Fluoranthene	
17	Fluorene	
18	Indeno(1,2,3-cd)pyrene	
19	2-Methylnaphthalene	
20	2-Methylphenol	
21	3&4 Methylphenol	
22	Naphthalene	
23	p-Chloro-m-cresol	
24	Pentachlorophenol	
25	Phenanthrene	
26	Phenol	
27	2-Picoline	
28	2,3,4,6-Tetrachlorophenol	
29	2,4,6-Trichlorophenol	
30	2,3,4-methylphenol	

Table B2. Groundwater Elevations
Manor Timber Company
Manor, Clinch County, GA
Permit Number: HW-047(D)

Well No.	**MW-1**	**MW-1A**	**MW-3**	**MW-3B**	**MW-4B**	**MW-5**	**MW-6**	**MW-7**
Install Date	Dec 1982	May 1984	Dec 1982	Oct 1991	May 1993	Sept 1991	April 1991	Oct 1991
Diameter (Inch)	2"	2"	2"	2"	2"	2"	2"	2"
Well Depth (Ft)	28.0	41.5	39.0	67.0	32.0	15.0	17.5	15.0
Screen Intv (Ft)	21-26'	34.5-39.5'	32-37'	57-67'	20-30'	10-15'	5-15'	9-14'
TOC Elev (Ft)	160.13	160.35	160.68	160.89	161.43	161.40	161.11	159.65

DATE	**DTW**	**ELEV**	**DTW**	**ELEV**	**DTW**	**ELEV**	**DTW**	**ELEV**	**DTW**	**ELEV**	**DTW**	**ELEV**	**DTW**	**ELEV**	**DTW**	**ELEV**
01/07/99	6.79	153.34	6.78	153.57	7.41	153.27	44.04	116.85	7.71	153.72	7.49	153.91	7.77	153.34	4.74	154.91
07/07/99	6.37	153.76	6.43	153.92	7.69	152.99	44.47	116.42	7.78	153.65	7.56	153.84	8.29	152.82	3.83	155.82
01/10/00	10.01	150.12	NM	NM	11.11	149.57	46.09	114.80	10.92	150.51	10.73	150.67	11.87	149.24	7.95	151.70
07/24/00	5.50	154.63	5.61	154.74	6.43	154.25	46.25	114.64	6.90	154.53	6.59	154.81	6.26	154.85	3.09	156.56
01/25/01	5.25	154.88	5.39	154.96	6.28	154.40	46.23	114.66	6.56	154.87	6.23	155.17	6.00	155.11	3.64	156.01
07/09/01	4.92	155.21	5.00	155.35	5.48	155.20	45.78	115.11	6.05	155.38	5.52	155.88	5.36	155.75	3.66	155.99
01/11/02	8.06	152.07	8.24	152.11	8.70	151.98	47.06	113.83	9.36	152.07	9.12	152.28	9.13	151.98	7.14	152.51
07/11/02	8.01	152.12	8.30	152.05	8.95	151.73	47.29	113.60	9.07	152.36	8.84	152.56	9.16	151.95	6.94	152.71
01/21/03	5.20	154.93	5.36	154.99	5.70	154.98	47.60	113.29	6.43	155.00	6.17	155.23	5.96	155.15	3.77	155.88
07/23/03	6.87	153.26	6.85	153.50	7.20	153.48	48.12	112.77	7.54	153.89	7.01	154.39	7.43	153.68	5.39	154.26
01/07/04	6.13	154.00	6.14	154.21	6.62	154.06	45.11	115.78	7.41	154.02	6.50	154.90	6.21	154.90	4.02	155.63
07/12/04	5.51	154.62	5.52	154.83	5.58	155.10	44.99	115.90	6.59	154.84	5.80	155.60	5.40	155.71	3.20	156.45
01/20/05	5.34	154.79	5.30	155.05	5.69	154.99	44.60	116.29	6.21	155.22	5.50	155.90	5.20	155.91	3.25	156.40
07/06/05	5.04	155.09	4.94	155.41	4.83	155.85	43.80	117.09	5.61	155.82	4.67	156.73	4.52	156.59	3.04	156.61
01/28/06	6.18	153.95	6.17	154.18	6.93	153.75	45.05	115.84	6.74	154.69	6.45	154.95	6.35	154.76	4.03	155.62
07/24/06	9.86	150.27	8.72	151.63	9.23	151.45	45.91	114.98	9.23	152.20	9.10	152.30	9.48	151.63	7.30	152.35
01/29/07	6.00	154.13	6.12	154.23	7.20	153.48	48.00	112.89	7.25	154.18	7.25	154.15	6.93	154.18	4.44	155.21
07/31/07	6.12	154.01	6.19	154.16	7.03	153.65	48.81	112.08	7.25	154.18	7.05	154.35	6.80	154.31	7.80	151.85
01/29/08	5.03	155.10	5.07	155.28	5.75	154.93	48.97	111.92	6.10	155.33	5.80	155.60	5.61	155.5	3.03	156.62
07/24/08	8.11	152.02	8.05	152.30	8.70	151.98	48.57	112.32	8.94	152.49	8.41	152.99	8.72	152.39	6.53	153.12
03/31/09	6.00	154.13	5.91	154.44	7.65	153.03	48.60	112.29	5.60	155.83	6.40	155.00	6.12	154.99	4.20	155.45
07/22/09	7.99	152.14	7.85	152.50	8.08	152.60	48.30	112.59	8.36	153.07	7.66	153.74	8.33	152.78	6.21	153.44
01/18/10	5.10	155.03	5.20	155.15	5.30	155.38	48.60	112.29	6.31	155.12	5.80	155.60	5.50	155.61	2.25	157.40
06/29/10	5.32	154.81	5.29	155.06	5.00	155.68	47.43	113.46	6.30	155.13	4.65	156.75	4.80	156.31	1.86	157.79
01/17/11	7.63	152.50	7.63	152.72	8.36	152.32	48.97	111.92	8.25	153.18	8.25	153.15	8.34	152.77	5.53	154.12
07/13/11	8.95	151.18	9.01	151.34	10.58	150.10	49.74	111.15	10.29	151.14	9.96	151.44	10.44	150.67	7.08	152.57
02/12/12	7.04	153.09	7.01	153.34	6.63	154.05	50.28	110.61	7.90	153.53	6.94	154.46	6.88	154.23	4.92	154.73
07/10/12	6.99	153.14	6.82	153.53	6.50	154.18	49.71	111.18	7.43	154.00	5.90	155.50	6.59	154.52	4.97	154.68
10/23/17	6.11	154.02	6.12	154.23	7.25	153.43	49.73	111.16	7.15	154.28	6.60	154.80	6.93	154.18	4.34	155.31
05/23/19	6.32	153.81	6.37	153.98	6.80	153.88	47.85	113.04	7.13	154.30	6.71	154.69	7.38	153.73	5.33	154.32
06/28/22	6.20	153.93	5.96	154.39	6.35	154.33	47.75	113.14	6.54	154.89	5.97	155.43	6.35	154.76	4.34	155.31

NOTES:

All measurements are in feet

DTW = Depth to groundwater measured using an electronic water level indicator

ELEV = Groundwarter elevation calculated as follows: TOC Elevation - DTW

NM = Not Measured

Data collected prior to 2017, well elevations, diameters, depths, and screened intervals were obtained from the previous consultant. Data set may not be complete.

No free product has been detected.

AB-5 is a piezometer location.

POC wells include MW-4B, MW-5, MW-6, MW-15, MW-16 and MW-17.

All elevations based on topographic survey dated July 15, 1991.

Table B2. Groundwater Elevations
Manor Timber Company
Manor, Clinch County, GA
Permit Number: HW-047(D)

Well No.	**MW-8**	**MW-9**	**MW-10**	**MW-11**	**MW-12**	**MW-13**	**MW-14**	**MW-15**
Install Date	Nov 1991	Feb 1992	Feb 1992	May 1992	May 1992	May 1992	July 1992	May 1991
Diameter (Inch)	2"	2"	2"	2"	2"	2"	2"	2"
Well Depth (Ft)	23.0	15.0	15.5	15.0	15.0	15.5	16.5	10.0
Screen Intv (Ft)	12-22'	8-13'	10-15'	9-14'	9-14'	9-14'	10-15'	7-9'
TOC Elev (Ft)	159.40	156.98	159.91	157.20	159.56	159.86	159.33	158.49

DATE	**DTW**	**ELEV**	**DTW**	**ELEV**	**DTW**	**ELEV**	**DTW**	**ELEV**	**DTW**	**ELEV**	**DTW**	**ELEV**	**DTW**	**ELEV**	**DTW**	**ELEV**
01/07/99	5.29	154.11	3.74	153.24	6.66	153.25	5.45	151.75	4.97	154.59	5.36	154.50	8.47	150.86	4.46	154.03
07/07/99	5.63	153.77	5.76	151.22	7.49	152.42	6.89	150.31	3.85	155.71	5.75	154.11	9.92	149.41	4.74	153.75
01/10/00	9.15	150.25	9.11	147.87	10.99	148.92	10.42	146.78	9.34	150.22	8.46	151.40	13.03	146.30	8.18	150.31
07/24/00	4.36	155.04	1.58	155.40	4.90	155.01	3.90	153.30	3.59	155.97	5.16	154.70	5.97	153.36	2.56	155.93
01/25/01	4.19	155.21	1.70	155.28	4.50	155.41	1.60	155.60	3.98	155.58	4.65	155.21	3.31	156.02	2.95	155.54
07/09/01	3.06	156.34	1.57	155.41	4.04	155.87	1.57	155.63	4.17	155.39	4.39	155.47	3.34	155.99	2.63	155.86
01/11/02	6.91	152.49	6.71	150.27	7.91	152.00	6.02	151.18	7.12	152.44	7.35	152.51	7.26	152.07	6.36	152.13
07/11/02	6.83	152.57	7.65	149.33	8.05	151.86	6.57	150.63	5.35	154.21	7.18	152.68	6.94	152.39	7.81	150.68
01/21/03	4.26	155.14	1.92	155.06	4.85	155.06	1.71	155.49	4.46	155.10	4.88	154.98	3.42	155.91	2.80	155.69
07/23/03	5.31	154.09	5.13	151.85	6.55	153.36	5.05	152.15	5.96	153.60	5.49	154.37	5.69	153.64	4.97	153.52
01/07/04	4.58	154.82	1.78	155.20	4.85	155.06	1.76	155.44	4.60	154.96	4.80	155.06	3.57	155.76	2.98	155.51
07/12/04	3.55	155.85	3.07	153.91	4.44	155.47	2.01	155.19	3.72	155.84	4.96	154.90	3.12	156.21	2.73	155.76
01/20/05	3.50	155.90	1.46	155.52	3.81	156.10	1.40	155.80	3.45	156.11	4.01	155.85	3.21	156.12	2.24	156.25
07/06/05	2.71	156.69	1.39	155.59	3.12	156.79	1.41	155.79	3.33	156.23	3.62	156.24	3.16	156.17	2.21	156.28
01/28/06	4.52	154.88	1.68	155.30	5.10	154.81	1.60	155.60	4.40	155.16	4.85	155.01	3.30	156.03	2.95	155.54
07/24/06	7.45	151.95	7.92	149.06	8.52	151.39	7.42	149.78	7.85	151.71	7.31	152.55	8.22	151.11	6.65	151.84
01/29/07	5.20	154.20	2.40	154.58	5.70	154.21	4.56	152.64	4.62	154.94	5.81	154.05	3.26	156.07	2.90	155.59
07/31/07	5.05	154.35	1.60	155.38	5.82	154.09	1.50	155.70	3.12	156.44	5.91	153.95	3.25	156.08	4.68	153.81
01/29/08	3.95	155.45	1.50	155.48	4.52	155.39	1.31	155.89	3.80	155.76	4.75	155.11	3.24	156.09	2.90	155.59
07/24/08	6.52	152.88	6.11	150.87	7.72	152.19	6.40	150.80	6.90	152.66	6.43	153.43	7.45	151.88	6.22	152.27
03/31/09	4.33	155.07	2.50	154.48	4.95	154.96	2.30	154.90	4.25	155.31	4.65	155.21	3.55	155.78	3.60	154.89
07/22/09	6.08	153.32	6.33	150.65	7.46	152.45	6.20	151.00	6.47	153.09	5.90	153.96	7.51	151.82	6.03	152.46
01/18/10	3.75	155.65	1.60	155.38	4.91	155.00	3.10	154.10	3.50	156.06	4.68	155.18	3.25	156.08	2.85	155.64
06/29/10	3.03	156.37	1.30	155.68	3.82	156.09	1.00	156.20	3.00	156.56	4.00	155.86	3.19	156.14	2.52	155.97
01/17/11	6.44	152.96	6.38	150.60	7.23	152.68	5.51	151.69	6.67	152.89	6.71	153.15	5.65	153.68	5.23	153.26
07/13/11	9.50	149.90	8.55	148.43	9.59	150.32	7.94	149.26	8.95	150.61	8.22	151.64	7.02	152.31	6.47	152.02
02/12/12	5.18	154.22	2.42	154.56	5.55	154.36	2.04	155.16	5.38	154.18	5.49	154.37	3.84	155.49	4.41	154.08
07/10/12	4.77	154.63	3.91	153.07	5.83	154.08	3.89	153.31	5.39	154.17	5.13	154.73	5.91	153.42	4.52	153.97
10/23/17	4.95	154.45	3.57	153.41	5.90	154.01	3.38	153.82	5.37	154.19	5.23	154.63	4.77	154.56	4.59	153.90
05/23/19	5.25	154.15	5.57	151.41	6.70	153.21	5.13	152.07	6.10	153.46	5.41	154.45	6.75	152.58	5.62	152.87
06/28/22	4.46	154.94	3.18	153.80	5.92	153.99	3.86	153.34	5.20	154.36	4.95	154.91	5.34	153.99	3.43	155.06

NOTES:

All measurements are in feet

DTW = Depth to groundwater measured using an electronic water level indicator

ELEV = Groundwarter elevation calculated as follows: TOC Elevation - DTW

NM = Not Measured

Data collected prior to 2017, well elevations, diameters, depths, and screened intervals were obtained from the previous consultant. Data set may not be complete.

No free product has been detected.

AB-5 is a piezometer location.

POC wells include MW-4B, MW-5, MW-6, MW-15, MW-16 and MW-17.

All elevations based on topographic survey dated July 15, 1991.

TOC elevation for MW-15 changed from 158.49 to 158.85 based on the 2008 resurvey.

Table B2. Groundwater Elevations
Manor Timber Company
Manor, Clinch County, GA
Permit Number: HW-047(D)

Well No.	MW-16	MW-17	MW-18	MW-19	AB-5
Install Date	May 1991	May 1993	Nov 1996	Sept 1998	May 1991
Diameter (Inch)	2"	2"	2"	2"	2"
Well Depth (Ft)	15.0	18.0	18.0	16.0	15.5
Screen Intv (Ft)	9-14'	12-17'	12-17'	10-15'	5-15'
TOC Elev (Ft)	157.22	157.95	158.93	160.47	159.83

DATE	DTW	ELEV	DTW	ELEV	DTW	ELEV	DTW	ELEV	DTW	ELEV
01/07/99	3.80	153.42	4.90	153.05	5.54	153.39	7.00	153.47	3.84	155.99
07/07/99	3.18	154.04	4.36	153.59	5.57	153.36	7.20	153.27	2.56	157.27
01/10/00	7.32	149.90	8.08	149.87	9.42	149.51	10.62	149.85	8.90	150.93
07/24/00	2.30	154.92	3.53	154.42	4.15	154.78	5.18	155.29	2.84	156.99
01/25/01	2.22	155.00	3.23	154.72	3.84	155.09	5.16	155.31	3.68	156.15
07/09/01	1.93	155.29	2.87	155.08	3.92	155.01	5.19	155.28	3.47	156.36
01/11/02	5.37	151.85	6.02	151.93	7.24	151.69	8.17	152.30	6.15	153.68
07/11/02	5.21	152.01	5.95	152.00	7.71	151.22	8.52	151.95	5.30	154.53
01/21/03	2.25	154.97	3.08	154.87	3.93	155.00	5.37	155.10	4.51	155.32
07/23/03	4.42	152.80	4.90	153.05	6.54	152.39	7.46	153.01	3.99	155.84
01/07/04	3.23	153.99	4.12	153.83	5.68	153.25	5.95	154.52	4.96	154.87
07/12/04	2.51	154.71	3.45	154.50	4.67	154.26	5.65	154.82	3.02	156.81
01/20/05	2.31	154.91	3.25	154.70	3.80	155.13	5.10	155.37	3.97	155.86
07/06/05	2.13	155.09	2.97	154.98	3.83	155.10	5.03	155.44	3.54	156.29
01/28/06	2.80	154.42	4.03	153.92	4.60	154.33	6.10	154.37	5.06	154.77
07/24/06	6.32	150.90	6.90	151.05	8.48	150.45	9.53	150.94	NM	NM
01/29/07	2.70	154.52	3.86	154.09	4.40	154.53	5.75	154.72	NM	NM
07/31/07	2.98	154.24	4.00	153.95	4.63	154.30	4.63	155.84	NM	NM
01/29/08	2.03	155.19	2.92	155.03	3.60	155.33	5.05	155.42	NM	NM
07/24/08	5.30	151.92	6.11	151.84	7.30	151.63	8.37	152.10	4.96	154.87
03/31/09	2.57	154.65	3.91	154.04	4.70	154.23	6.10	154.37	NM	NM
07/22/09	5.39	151.83	6.00	151.95	7.38	151.55	8.37	152.10	NM	NM
01/18/10	2.20	155.02	3.00	154.95	3.47	155.46	4.70	155.77	NM	NM
06/29/10	2.43	154.79	3.25	154.70	3.55	155.38	4.70	155.77	NM	NM
01/17/11	3.01	154.21	5.19	152.76	5.75	153.18	7.39	153.08	NM	NM
07/13/11	4.95	152.27	6.76	151.19	7.99	150.94	8.84	151.63	NM	NM
02/12/12	3.88	153.34	4.98	152.97	5.39	153.54	6.77	153.70	NM	NM
07/10/12	4.09	153.13	4.99	152.96	6.10	152.83	7.23	153.24	NM	NM
10/23/17	3.36	153.86	4.15	153.80	5.20	153.73	6.38	154.09	4.58	155.25
05/23/19	4.00	153.22	4.43	153.52	6.17	152.76	7.37	153.10	5.64	154.19
06/28/22	3.06	154.16	4.01	153.94	4.78	154.15	6.42	154.05	4.70	155.13

NOTES:
All measurements are in feet
DTW = Depth to groundwater measured using an electronic water level indicator
ELEV = Groundwarter elevation calculated as follows: TOC Elevation - DTW
NM = Not Measured
Data collected prior to 2017, well elevations, diameters, depths, and screened intervals were obtained from the previous consultant. Data set may not be complete.
No free product has been detected.
AB-5 is a piezometer location.
POC wells include MW-4B, MW-5, MW-6, MW-15, MW-16 and MW-17.
All elevations based on topographic survey dated July 15, 1991.

TABLE B3

MANOR TIMBER COMPANY
K001 CONSTITUENTS/BTEX
JULY 2006

CONSTITUENT	MW3	MW4B	MW6	MW11	MW15	MW16	MW17	MW18
Naphthalene	<10	69	<10	81	<10	400	840D	450D
Acenaphthene	<10	55	<10	37	79	<94	82	20
Phenanthrene	<10	40	<10	<10	<10	<94	23	<10
Anthracene	<10	<10	<10	<10	<10	<94	<10	<10
Fluoranthene	<10	20	<10	<10	<10	<94	<10	<10
Tetrachlorophenols	<10	<10	<10	<10	<10	<94	<10	<10
Pentachlorophenol	<10	<50	<10	<50	<50	<470	<50	<50
Phenol	<10	59	<10	<10	<10	560	180	49
2-Chlorophenol	<10	<10	<10	<10	<10	<94	<10	<10
2-Methylnaphthalene	<10	34	<10	31	<10	<94	110	33
2,4 Dimethylphenol	<10	75	<10	<10	<10	200	180	150
Fluorene	<10	34	<10	50	51	<94	79	33
O-cresol (2-Methylphenol)	<10	57	<10	<10	<10	200	120	75
Dibenzofuran	<10	29	<10	20	11	<94	45	<10
Carbazole	<10	22	<10	22	19	<94	62	<10
M&P Cresol	<10	92	<10	<10	<10	810	310D	120
Acenaphthylene	<10	<10	<10	<10	<10	<94	<10	<10
K001 Total	**ND**	**586**	**ND**	**241**	**185**[1]	**2170**	**2031**	**930**
Acetone	<25	<25	<25	<25	<25	270	<50	35
2 Butanone (MEK)	<10	<10	<10	<10	<10	130	<50	25
Benzene	<1.0	3.8	<1.0	<1.0	<1.0	<10	<5.0	2.9
Toluene	<1.0	2.1	<1.0	25	14	1800	340	180D
Ethylbenzene	<1.0	1.1	<2.0	<1.0	2.6	<10	6.4	34
Xylenes (Total)	<2.0	3.1	<10	<20	<2.0	<20	<10	6.6
4 Methyl - 2 pentanone	<10	<10	<10	<10	<10	<100	<50	<10
2 Hexanone	<10	<10	<10	<10	<10	<100	<50	<10
TOTAL VOCs	**ND**	**10.1**	**ND**	**25**	**16.6**	**2200**	**346.4**	**293.5**

NOTE: All constituent concentrations are shown in µg/L, or parts per billion.
ND = Not detected
D = Diluted sample

[1] 2-Picoline was also detected in MW15 at 25 µg/L .

TABLE B3

MANOR TIMBER COMPANY
K001 CONSTITUENTS/BTEX
JANUARY 2006

CONSTITUENT	MW3	MW4B	MW6	MW11	MW15	MW16	MW17	MW18
Naphthalene	31	300	LT9.8	LT9.4	21	500	1700	580
Acenaphthene	LT9.6	72	LT9.8	LT9.5	13	LT96	140	LT94
Phenanthrene	LT9.6	LT48	LT9.8	LT9.4	LT10	LT96	LT94	LT94
Anthracene	LT9.6	LT48	LT9.8	LT9.4	LT10	LT96	LT94	LT94
Fluoranthene	LT9.6	LT48	LT9.8	LT9.4	LT10	LT96	LT94	LT94
Tetrachlorophenols	LT9.6	LT48	LT9.8	LT9.4	LT10	LT96	LT94	LT94
Pentachlorophenol	LT48	LT240	LT49	LT47	LT51	LT480	LT470	LT470
Phenol	LT9.6	81	LT9.8	LT9.4	LT10	810	190	150
2-Chlorophenol	LT9.6	LT48	LT9.8	LT9.4	LT10	LT96	LT94	LT94
2-Methylnaphthalene	LT9.6	56	LT9.8	LT9.4	LT10	LT96	180	LT94
2,4 Dimethylphenol	LT9.6	82	LT9.8	LT9.4	LT10	280	280	180
Fluorene	LT9.6	LT48	LT9.8	14	LT10	310	120	LT94
O-cresol (2-Methylphenol)	LT9.6	68	LT9.8	LT9.4	LT10	LT96	160	99
Dibenzofuran	LT9.6	LT48	LT9.8	LT9.4	LT10	LT96	LT94	LT94
Carbazole	LT9.6	LT48	LT9.8	LT9.4	LT10	LT96	96	LT94
M&P Cresol	LT9.6	110	LT9.8	LT9.4	LT10	1200	390	310
Acenaphthylene	LT9.6	LT48	LT9.8	LT9.4	LT10	LT96	LT94	LT94
K001 Total	**31**	**769**	**-**	**23.5**	**34**	**3220**	**3256**	**1319**
Acetone	LT25	LT25	LT25	LT25	LT25	LT130	LT130	63
2 Butanone (MEK)	LT10	LT10	LT10	LT10	LT10	82	LT50	75
Benzene	LT1	4.2	LT1	LT1	LT1	LT5.0	LT5.0	2.8
Toluene	LT1	2.0	LT1	LT1	LT1	1500	420	340
Ethylbenzene	LT1	1.7	LT1	LT1	LT1	11	15	36
Xylenes (Total)	LT2	4.0	LT2	LT2	LT2	LT10	20	7.9
4 Methyl - 2 pentanone	LT10	LT10	LT10	LT10	LT10	LT50	LT50	LT20
2 Hexanone	LT10	LT10	LT10	LT10	LT10	LT50	LT50	LT20
TOTAL VOCs	**-**	**11.9**	**-**	**-**	**-**	**1593**	**455**	**524.7**

NOTE: All constituent concentrations are shown in µg/L, or parts per billion.
LT = Less than

TABLE B3

MANOR TIMBER COMPANY
K001 CONSTITUENTS/BTEX
JULY 2005

CONSTITUENT	MW3	MW4B	MW6	MW11	MW15	MW16	MW17	MW18
Naphthalene	25	390	LT9.9	LT9.4	30	870	820	350
Acenaphthene	LT10	94	LT9.9	LT9.4	26	LT97	LT99	LT47
Phenanthrene	LT10	56	LT9.9	LT9.4	LT9.4	LT97	LT99	LT47
Anthracene	LT10	LT47	LT9.9	LT9.4	LT9.4	LT97	LT99	LT47
Fluoranthene	LT10	LT47	LT9.9	LT9.4	LT9.4	LT97	LT99	LT47
Tetrachlorophenols	LT10	LT47	LT9.9	LT9.4	LT9.4	LT97	LT99	LT47
Pentachlorophenol	LT50	LT240	LT50	LT47	LT47	LT490	LT500	LT240
Phenol	LT10	LT47	LT9.9	LT9.4	LT9.4	1700	170	71
2-Chlorophenol	LT10	LT47	LT9.9	LT9.4	LT9.4	LT97	LT99	LT47
2-Methylnaphthalene	LT10	91	LT9.9	LT9.4	LT9.4	LT97	110	LT47
2,4 Dimethylphenol	LT10	LT47	LT9.9	LT9.4	LT9.4	480	170	LT47
Fluorene	LT10	58	LT9.9	LT9.4	24	130	LT99	LT47
O-cresol (2-Methylphenol)	LT10	LT47	LT9.9	LT9.4	LT9.4	490	120	62
Dibenzofuran	LT10	61	LT9.9	LT9.4	LT9.4	LT97	LT99	LT47
Carbazole	LT10	LT41	LT9.9	LT9.4	LT9.4	LT97	LT99	LT1
M&P Cresol	LT10	LT47	LT9.9	LT9.4	LT9.4	2100	340	160
Acenaphthylene	LT10	LT47	LT9.9	LT9.4	LT9.4	LT97	LT99	LT47
K001 Total	**25**	**750**	**–**	**–**	**80**	**5770**	**1730**	**643**
Acetone	LT25	LT25	LT25	LT25	LT25	LT500	68	LT25
2 Butanone (MEK)	LT10	LT10	LT10	LT10	LT10	LT200	38	LT10
Benzene	LT1	2.0	LT1	LT1	LT1	LT20	4.2	2.3
Toluene	LT1	LT1	LT1	LT1	4.3	1400	250	160
Ethylbenzene	LT1	LT1	LT1	LT1	LT1	LT20	7.2	29
Xylenes (Total)	LT2	2.3	LT2	LT2	LT2	LT40	11	6.1
4 Methyl – 2 pentanone	LT10	LT10	LT10	LT10	LT10	LT200	LT20	LT10
2 Hexanone	LT10	LT10	LT10	LT10	LT10	LT200	LT20	LT10
TOTAL VOCs	**–**	**4.3**	**–**	**–**	**4.3**	**1400**	**367.4**	**197.4**

ͻTE: All constituent concentrations are shown in µg/L, or parts per billion.
; = Less than

TABLE B3

MANOR TIMBER COMPANY
KOO1 CONSTITUENTS/BTEX
JULY 2004

CONSTITUENT	MW3	MW4B	MW6	MW11	MW15	MW16	MW17	MW18
Naphthalene	16	500	LT10	LT10	LT10	460	660	430
Acenaphthene	LT10	LT100	LT10	LT10	30	LT100	LT100	LT50
Phenanthrene	LT10	LT100	LT10	LT10	LT10	LT100	LT100	LT50
Anthracene		LT100	LT10	LT10	LT10	LT100	LT100	LT50
Fluoranthene	LT10	LT100	LT10	LT10	LT10	LT100	LT100	LT50
Tetrachlorophenols	LT10	LT100	LT10	LT10	LT10	LT100	LT100	LT50
Pentachlorophenol	LT50	LT500	LT50	LT50	LT50	LT500	LT500	LT250
Phenol	LT10	LT100	LT10	LT10	LT10	970	140	LT50
2-Chlorophenol	LT10	LT100	LT10	LT10	LT10	LT100	LT100	LT50
2-Methylnaphthalene	LT10	LT100	LT10	LT10	LT10	LT100	LT10	LT50
2,4 Dimethylphenol	LT10	LT100	LT10	LT10	LT10	240	120	160
Fluorene	LT10	LT100	LT10	LT10	33	LT100	LT100	LT50
O-cresol	LT10	LT100	LT10	LT10	LT10	260	LT100	120
Dibenzofuran	LT10	LT100	LT10	LT10	LT10	LT100	LT100	LT50
Carbazole	LT10	LT100	LT10	LT10	LT10	LT100	LT100	LT50
M&P Cresol	LT10	LT100	LT10	LT10	LT10	LT100	LT100	LT50
Acenaphthylene	LT10	LT100	LT10	LT10	LT10	LT100	LT100	LT50
K001 Total	**16**	**500**	**-**	**-**	**63**	**1930**	**920**	**710**
Acetone	LT25	LT120	LT25	LT25	LT25	LT200	LT250	LT500
2 Butanone (MEK)	LT10	LT50	LT10	LT10	LT10	LT500	LT100	LT200
Benzene	LT1.0	5.1	LT1.0	LT1.0	LT1.0	LT50	LT10	LT20
Toluene	LT1.0	LT5.0	LT1.0	LT1.0	18	1500	360	550
Ethylbenzene	LT1.0	LT5.0	LT1.0	LT1.0	1.1	LT50	LT10	31
Xylenes (Total)	LT2.0	LT10	LT2.0	LT2.0	LT2.0	LT100	LT20	LT40
4 Methyl - 2 pentanone	LT10	LT50	LT10	LT10	LT10	LT500	LT100	LT206
2 Hexanone	LT10	LT50	LT10	LT10	LT10	LT500	LT100	LT200
TOTAL VOCs	**-**	**5.5**	**-**	**-**	**19.1**	**1500**	**360**	**581**

OTE: All constituent concentrations are shown in µg/L, or parts per billion.
LT = Less than

TABLE B3

MANOR TIMBER COMPANY
KOO1 CONSTITUENTS/BTEX
JANUARY 2004

CONSTITUENT	MW3	MW4B	MW6	MW11	MW15*	MW16	MW17	MW18
Naphthalene	22	530	LT10	14	32	610	1000	460
Acenaphthene	LT10	100	LT10	18	32	LT100	LT100	LT40
Phenanthrene	LT10	50	LT10	LT10	LT10	LT100	LT100	LT40
Anthracene	LT10	LT50	LT10	LT10	LT10	LT200	LT100	LT40
Fluoranthene	LT10	LT50	LT10	LT10	LT10	LT100	LT100	LT40
Tetrachlorophenols	LT10	LT50	LT10	LT10	LT10	LT100	LT100	LT40
Pentachlorophenol	LT50	LT250	LT50	LT50	LT50	LT500	LT500	LT200
Phenol	LT10	LT50	LT10	LT10	LT10	1100	220	170
2-Chlorophenol	LT10	LT50	LT10	LT10	LT10	LT100	LT100	LT40
2-Methylnaphthalene	LT10	98	LT10	12	LT10	LT100	130	46
2,4 Dimethylphenol	LT10	LT50	LT10	LT10	17	340	190	240
Fluorene	LT10	64	LT10	32	28	100	LT100	46
O-cresol	LT10	LT50	LT10	LT10	LT10	340	120	120
Dibenzofuran	LT10	62	LT10	11	LT10	LT100	LT100	LT40
Carbazole	LT10	LT50	LT10	10	LT10	LT100	LT100	LT40
M&P Cresol	LT10	LT50	LT10	LT10	LT10	1500	340	290
Acenaphthylene	LT10	LT50	LT10	LT10	LT10	LT100	LT100	LT40
K001 Total	**22**	**924**	-	**97**	**109**	**3990**	**2000**	**1372**
Acetone	LT25	LT25	LT25	LT25	LT25	340	52	LT120
2 Butanone (MEK)	LT10	LT10	LT10	LT10	LT10	220	29	64
Benzene	LT1.0	9.1	LT1.0	LT1.0	LT1.0	LT10	2.7	LT5.0
Toluene	LT1.0	LT1.0	LT1.0	LT1.0	12	1500	190	190
Ethylbenzene	LT1.0	2.7	LT1.0	LT1.0	1.3	15	3.7	24
Xylenes (Total)	LT2.0	4.4	LT2.0	LT2.0	LT2.0	LT20	6.5	LT10
4 Methyl - 2 pentanone	LT10	LT10	LT10	LT10	LT10	LT100	LT20	LT50
2 Hexanone	LT10	LT10	LT10	LT10	LT10	LT100	LT20	LT50
TOTAL VOCs	-	**16.2**	-	-	**13.3**	**2075**	**283.9**	**278**

NOTE: All constituent concentrations are shown in µg/L, or parts per billion.
LT = Less than

TABLE B3

MANOR TIMBER COMPANY
KOO1 CONSTITUENTS/BTEX
JULY 2003

CONSTITUENT	MW3	MW4B	MW6	MW11	MW15*	MW16	MW17	MW18
Naphthalene √	30	1000	LT10	120	70	990	700	680
Acenaphthene √	LT10	LT200	LT10	34	56	LT200	LT100	LT100
Phenanthrene √	LT10	LT200	LT10	LT10	LT10	LT200	LT100	LT100
Anthracene √	LT10	LT200	LT10	LT10	LT10	LT200	LT100	LT100
Fluoranthene √	LT10	LT200	LT10	LT10	LT10	LT200	LT100	LT100
Tetrachlorophenols √	LT10	LT200	LT10	LT10	LT10	LT200	LT100	LT100
Pentachlorophenol √	LT50	LT1000	LT50	LT50	LT50	LT1000	LT500	LT500
Phenol √	LT10	LT200	LT10	LT10	LT10	2400	180	100
2-Chlorophenol √	LT10	LT200	LT10	LT10	LT10	LT200	LT100	LT100
2-Methylnaphthalene √	LT10	LT200	LT10	33	13	LT200	LT100	LT100
2,4 Dimethylphenol √	LT10	LT200	LT10	LT50	20	530	130	250
Fluorene	LT10	LT200	LT10	50	51	LT200	LT100	LT100
O-cresol	LT10	LT200	LT10	LT10	LT10	560	LT100	LT100
Dibenzofuran	LT10	LT200	LT10	18	11	LT10	LT100	LT100
Carbazole	LT10	LT200	LT10	22	LT10	LT200	LT100	LT100
M&P Cresol	LT10	LT200	LT10	LT10	LT10	2400	260	230
Acenaphthylene	LT10	LT200	LT10	LT10	LT10	LT200	LT100	LT100
K001 Total	**30**	**1000**	**-**	**227**	**234**	**6880**	**1270**	**1160**
Acetone	LT25	LT25	LT25	LT25	27H	490	56	LT120
2 Butanone (MEK)	LT10	LT10	LT10	LT10	LT10	350	31	LT50
Benzene √	LT1.0	14	LT1.0	LT1.0	LT1.0	LT10	3.9	LT5.0
Toluene √	LT1.0	LT1.0	LT1.0	6.8	59	1700	240	350
Ethylbenzene √	LT1.0	3.9	LT1.0	LT1.0	2.4	19	4.8	32
Xylenes (Total)	LT2.0	5.2	LT2.0	LT2.0	LT2.0	LT2.0	7.2	LT10
4 Methyl - 2 pentanone	LT10	LT10	LT10	LT10	LT10	LT100	LT20	LT50
2 Hexanone	LT10	LT10	LT10	LT10	LT10	LT100	LT20	LT50
TOTAL VOCs	**-**	**23.1**	**-**	**6.8**	**88.4**	**2559**	**342.9**	**382**

.OTE: All constituent concentrations are shown in µg/L, or parts per billion.
.T = Less than
* also detected 2-picolin at 13 µg/l.

TABLE B3

MANOR TIMBER COMPANY
K001 CONSTITUENTS/BTEX
JANUARY 2002

CONSTITUENT	MW3	MW4B	MW6	MW11	MW15	MW16	MW17	MW18
Naphthalene	33	350	18	24	74	950	940	430
Acenaphthene	LT10	59	LT10	12	60	LT200	88	LT40
Phenanthrene	LT10	LT50	LT10	LT10	LT10	LT200	LT50	LT40
Anthracene	LT10	LT50	LT10	LT10	LT10	LT200	LT50	LT40
Fluoranthene	LT10	LT50	LT10	LT10	LT10	LT200	LT50	LT40
Tetrachlorophenols	LT10	LT50	LT10	LT10	LT10	LT200	LT50	LT40
Pentachlorophenol	LT50	LT250	LT50	LT50	LT50	LT1000	LT250	LT200
Phenol	LT10	LT50	LT10	LT10	LT10	2700	250	LT40
2-Chlorophenol	LT10	LT50	LT10	LT10	LT10	LT200	LT200	LT40
2-Methylnaphthalene	LT10	65	LT10	LT10	14	LT200	120	LT40
2,4 Dimethylphenol	LT10	LT50	LT10	LT10	27	630	200	170
Fluorene	LT10	LT50	LT10	14	52	LT200	66	LT50
O-cresol	LT10	LT50	LT10	LT10	14	LT200	140	83
Dibenzofuran	LT10	LT50	LT10	LT10	15	LT200	54	LT40
Carbazole	LT10	LT50	LT10	LT10	18	LT200	LT68	LT40
M&P Cresol	LT10	LT50	LT10	LT10	LT10	2800	360	97
Acenaphthylene	LT10	LT50	LT10	LT10	LT10	LT200	LT50	LT54
K001 Total	**33**	**474**	**18**	**50**	**274**	**7080**	**2286**	**780**
Acetone	LT25	LT25	LT25	LT25	LT25	1200	270	LT50
2 Butanone (MEK)	LT25	LT25	LT25	LT25	LT25	570	88	LT25
Benzene	LT5	13	LT5	LT5	LT5	LT50	5.6	LT10
Toluene	LT5	LT5	LT5	LT5	8.0	1600	160	280
Ethylbenzene	LT5	LT5	LT5	LT5	LT5	LT50	7.4	26
Xylenes (Total)	LT10	LT10	LT10	LT10	LT10	LT200	LT20	LT20
4 Methyl - 2 pentanone	LT25	LT25	LT25	LT25	LT25	LT250	LT25	LT50
2 Hexanone	LT25	LT25	LT25	LT25	LT25	LT250	LT25	LT50
TOTAL VOCs	**-**	**13**	**-**	**-**	**8**	**3370**	**531**	**306**

ᴞTE: All constituent concentrations are shown in µg/L, or parts per billion.
 = Less than

TABLE B3

MANOR TIMBER COMPANY
K001 CONSTITUENTS/BTEX
JULY 2001

CONSTITUENT	MW3	MW4B	MW6	MW11	MW15	MW16	MW17	MW18
Naphthalene	56	510	LT10	LT10	94	520	1900	300
Acenaphthene	LT10	62	LT10	LT10	46	LT200	LT200	LT50
Phenanthrene	LT10	LT50	LT10	LT10	LT10	LT200	LT200	LT50
Anthracene	LT10	LT50	LT10	LT10	LT10	LT200	LT200	LT50
Fluoranthene	LT10	LT50	LT10	LT10	LT10	LT200	LT200	LT50
Tetrachlorophenols	LT10	LT50	LT10	LT10	LT10	LT200	LT200	LT50
Pentachlorophenol	LT50	LT250	LT50	LT50	LT50	LT1000	LT1000	LT250
Phenol	LT10	LT50	LT10	LT10	LT10	1300	530	LT50
2-Chlorophenol	LT10	LT50	LT10	LT10	LT10	LT200	LT200	LT50
2-Methylnaphthalene	LT10	68	LT10	LT10	17	LT200	210	LT50
2,4 Dimethylphenol	LT10	LT50	LT10	LT10	12	300	340	210
Fluorene	LT10	LT750	LT10	LT10	60	LT200	LT200	LT50
O-cresol	LT10	LT50	LT10	LT10	LT10	320	230	91
Dibenzofuran	LT10	LT50	LT10	LT10	14	LT200	LT200	LT50
Carbazole	LT10	LT50	LT10	LT10	24	LT200	LT200	LT50
M&P Cresol	LT10	LT50	LT10	LT10	LT10	1500	690	140
Acenaphthylene	LT10	LT50	LT10	LT10	LT10	LT200	LT200	LT50
K001 Total	**56**	**640**	**-**	**-**	**267**	**3940**	**3900**	**741**
Acetone	LT25	LT25	LT25	LT25	LT25	1100	190	LT50
2 Butanone (MEK)	LT25	LT25	LT25	LT25	LT25	LT500	77	LT50
Benzene	LT5	17	LT5	LT5	LT5	LT100	LT10	LT10
Toluene	LT5	LT5	LT5	LT5	LT5	2000	210	200
Ethylbenzene	LT5	LT5	LT5	LT5	LT5	LT100	LT10	16
Xylenes (Total)	LT10	LT10	LT10	LT10	LT10	LT200	LT20	LT20
4 Methyl - 2 pentanone	LT25	LT25	LT25	LT25	LT25	LT500	LT50	LT50
2 Hexanone	LT25	LT25	LT25	LT25	LT25	LT500	LT50	LT50
TOTAL VOCs	**-**	**17**	**-**	**-**	**-**	**3100**	**477**	**216**

NOTE: All constituent concentrations are shown in µg/L, or parts per billion.
LT = Less than
*F35= Due to analyte abundance, target compound concentrations are reported from multiple runs to achieve requested detection limits.

TABLE B3

MANOR TIMBER COMPANY
KOO1 CONSTITUENTS/BTEX
JANUARY 2000

CONSTITUENT	MW3	MW4B	MW6	MW11	MW15	MW16	MW17	MW18
Naphthalene	83	470	45	220	25	610	2200	330
Acenaphthene	LT10	LT50	18	78	31	LT100	240	LT50
Phenanthrene & Anthracene	LT10	LT10	LT10	11	LT10	LT100	LT100	LT50
Fluoranthene	LT10	LT50	LT10	LT10	LT10	LT100	LT100	LT50
Tetrachlorophenols	LT10	LT50	LT10	LT10	LT10	LT100	LT100	LT50
Pentachlorophenol	LT50	LT250	LT50	LT50	LT50	LT500	LT500	LT250
Phenol	LT10	LT50	LT10	LT10	LT10	2300	850	LT50
2-Chlorophenol	LT10	LT50	LT10	LT10	LT10	LT100	LT100	LT50
2-Methylnaphthalene	LT10	54	LT10	70	LT10	LT100	350	LT50
2,4 Dimethylphenol	LT10	LT50	13	14	70	490	570	100
Fluorene	LT10	LT50	27	100	30	LT100	160	LT50
O-cresol	LT10	LT50	LT10	12	34	2900	1600	56
Dibenzofuran	LT10	LT50	LT10	54	LT10	LT100	140	LT50
Carbazole	LT10	51	LT10	62	11	LT100	220	LT50
M&P Cresol	LT10	LT50	LT10	LT10	LT10	LT100	LT100	LT50
Acenaphthylene	LT10	LT50	LT10	LT10	LT10	LT50	LT100	LT50
K001 Total	**83**	**575**	**103**	**521**	**201**	**6300**	**6330**	**486**
Acetone	LT5.0	LT5.0	LT5.0	LT5.0	LT5.0	800	410	LT5.0
2 Butanone (MEK)	LT5.0	LT5.0	LT5.0	LT5.0	LT5.0	390	138	LT5.0
Benzene	LT5.0	19	LT5.0	LT10	LT5.0	LT25	16	LT5.0
Toluene	LT5.0	LT5.0	LT5.0	230	8.4	880	200	200
Ethylbenzene	LT5.0	LT5.0	LT5.0	LT10	LT5.0	LT25	17	14
Xylenes (Total)	LT10	LT10	LT10	LT20	LT10	LT50	36	LT10
4 Methyl - 2 pentanone	LT25	LT25	LT25	LT50	LT25	LT120	LT25	LT25
2 Hexanone	LT25	LT25	LT25	LT25	LT25	LT120	25	LT25
TOTAL VOCs	**-**	**19**	**-**	**230**	**8.4**	**2070**	**834**	**214**

NOTE: All constituent concentrations are shown in µg/L, or parts per billion.
: = Less than

TABLE B3

MANOR TIMBER COMPANY
K001 CONSTITUENTS/BTEX
JULY 1999

CONSTITUENT	WELL						
	MW3	MW4B	MW11	MW15	MW16	MW17	MW18
Naphthalene	98	1400	210	41	550	4500	12
Acenaphthene	LT10	95	72	18	LT50	450	LT10
Phenanthrene & Anthracene	LT10	54	LT10	LT10	LT50	LT200	LT10
Fluoranthene	LT10	LT40	LT10	LT10	LT50	LT200	LT10
Tetrachlorophenols	LT10	LT40	LT10	LT10	LT50	LT200	LT10
Pentachlorophenol	LT50	LT200	LT50	LT50	LT250	LT1000	LT50
Phenol	LT10	LT40	LT10	LT10	LT50	1400	LT10
2-Chlorophenol	LT10	LT40	LT10	LT10	LT50	1400	LT10
2-Methylnaphthalene	LT10	130	71	LT10	52	680	LT10
2,4 Dimethylphenol	LT10	LT40	14	13	290	900	73
Fluorene	LT10	52	100	21	80	290	17
O-cresol	LT10	LT40	LT10	LT10	340	660	63
Dibenzofuran	LT10	67	44	LT10	LT50	270	LT10
Carbazole	LT10	96	56	10	LT50	370	LT10
M&P Cresol	LT10	LT40	LT10	LT10	1500	2000	42
Acenaphthylene	LT10	LT40	LT10	LT10	LT50	LT200	LT10
K001 Total	98	**1894**	**567**	**103**	**2812**	**11520**	**207**
Benzene	LT5.0	14	LT5.0	LT5.0	LT25	22	LT5.0
Toluene	LT5.0	LT5.0	140	11	790	200	140
Ethylbenzene	LT5.0	6.0	LT5.0	LT5.0	LT25	24	9.4
Xylenes (Total)	LT10	16	LT10	LT10	LT50	56	LT10
4 Methyl - 2 pentanone	LT25	LT25	LT25	LT25	LT120	LT50	LT25
2 Hexanone	LT25	LT25	LT25	LT25	LT120	52	LT25
TOTAL VOCs	--	**36**	**140**	**11**	**790**	**354**	**149.4**

NOTE: All constituent concentrations are shown in ug/L, or parts per billion.
LT = Less than

TABLE B3

MANOR TIMBER COMPANY
KOO1 CONSTITUENTS/BTEX
JANUARY 1998

CONSTITUENT	WELL						
	MW3	MW4B	MW11	MW15	MW16	MW17	MW18
Naphthalene	120	2400	110	68	970	4400	68
Acenaphthene	LT10	170	46	31	LT200	<500	LT10
Phenanthrene & Anthracene	LT10	LT10	70	LT10	LT200	LT500	LT10
Fluoranthene	LT10	LT10	LT10	LT50	LT200	LT400	LT10
Tetrachlorophenols	LT50	60	LT50	LT50	LT1000	LT2500	LT50
Pentachlorophenol	LT50	60	LT50	LT50	LT1000	LT2500	LT50
Phenol	LT10	LT10	LT10	LT10	2100	740	46
2-Chlorophenol	LT10	LT10	LT10	LT10	LT200	LT500	LT10
2-Methylnaphthalene	LT10	230	40	13	LT200	590	LT10
2,4 Dimethylphenol	LT10	LT10	LT10	44	290	570	39
Fluorene	LT10	97	72	61	LT200	LT500	LT10
-cresol	LT10	LT10	LT10	24	570	LT500	27
Dibenzofuran	LT10	100	27	10	LT200	LT500	LT10
Carbazole	LT10	120	31	15	LT200	LT500	LT10
Acenaphthylene	LT10	LT10	LT10	LT10	LT200	LT500	LT10
M&P Cresol	LT10	LT10	LT10	LT10	2600	890	66
K001 Total	**120**	**3237**	**396**	**266**	**6530**	**7190**	**246**
Benzene	LT5.0	LT5.0	LT5.0	LT5.0	LT50	13	LT5.0
Toluene	LT5.0	LT5.0	5.7	110	570	120	100
Ethylbenzene	LT5.0	5.1	LT5.0	LT5.0	LT50	22	5.2
Xylenes (Total)	LT5.0	17	LT5.0	LT5.0	LT50	54	LT5.0
Acetone	LT50	LT50	LT50	LT50	800	210	LT50
MEK	LT25	LT25	LT25	LT25	590	72	25
TOTAL VOCs	**LT**	**22.1**	**5.7**	**110**	**1960**	**491**	**130.2**

OTE: All constituent concentrations are shown in ug/L, or parts per billion.
T = Less than

TABLE B3

MANOR TIMBER COMPANY
KOO1 CONSTITUENTS/BTEX
JANUARY 1997

CONSTITUENT	WELL						
	MW3	MW4B*	MW11	MW15	MW16*	MW17*	MW18
Naphthalene	210	1500	140	LT10	760	LT2500	150
Acenaphthene	LT20	200	66	18	LT200	550	LT10
Phenanthrene & Anthracene	LT20	LT20	LT10	LT10	LT200	LT500	LT10
Fluoranthene	LT20	LT20	LT10	LT10	LT200	LT500	LT10
Tetrachlorophenols	LT100	LT500	LT50	LT50	LT1000	LT2500	LT50
Pentachlorophenol	LT100	LT500	LT50	LT50	LT1000	LT2500	LT50
Phenol	LT20	LT100	LT10	16	2200	1100	35
2-Chlorophenol	LT20	LT100	LT10	LT10	LT200	LT500	LT10
2-Methylnaphthalene	NR	NR	NR	NR	NR	NR	NR
2,4 Dimethylphenol	LT100	LT500	LT50	58	340	6[illegible]	50
Fluorene	NR	NR	NR	NR	NR	NR	NR
O-cresol	NR	NR	NR	NR	NR	NR	NR
Dibenzofuran	NR	NR	NR	NR	NR	NR	NA
Carbazole	LT20	190	62	LT10	LT200	LT500	LT10
Acenaphthylene	LT20	LT100	LT10	LT10	LT200	LT500	LT10
K001 Total	210	1890	268	92	3300	3560	235
Benzene	LT1.0	3.1	LT1.0	LT5.0	LT10	25	LT10
Toluene	LT1.0	4.5	22	170	580	130	60
Ethylbenzene	LT1.0	6.4	LT1.0	LT5.0	18	31	5.5

TABLE B3

CONSTITUENT	WELL						
	MW3	MW4B*	MW11	MW15	MW16*	MW17*	MW18
Xylenes (Total)	LT2.0	27	LT2.0	LT10	LT20	86	1.7
Acetone	NR	NA	NA	NA	NA	NR	NA

* Elevated detection limits for EPA Method 8270 analysis in wells MW4B, MW16, MW17 (see laboratory data sheets)

NOTE: All constituent concentrations are shown in ug/l or parts per billion.

NR = Not Reported
NA = Not Analyzed
LT = Less than

TABLE B3

MANOR TIMBER COMPANY
K001 CONSTITUENTS/BTEX
JULY 1996

CONSTITUENT	WELL					
	MW3	MW4B[1]	MW11	MW15	MW16	MW17
Naphthalene	110[2]	2000	200	170	44	4000
Acenaphthene	ND[3]	200	65	58	ND	ND
Phenanthrene & Anthracene	ND	ND	ND	ND	ND	ND
Fluoranthene	ND	ND	ND	ND	ND	ND
Tetrachlorophenols	ND	ND	ND	ND	ND	ND
Pentachlorophenol	ND	ND	ND	ND	ND	ND
Phenol	ND	ND	ND	ND	1500	1200
2-Chlorophenol	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene	ND	ND	ND	ND	ND	ND
2,4 Dimethylphenol	ND	ND	ND	99	220	790
Fluorene	ND	ND	ND	ND	140	ND
O-cresol	ND	ND	ND	ND	ND	ND
Dibenzofuran	ND	ND	ND	ND	ND	ND
Carbazole	ND	310	50	59	ND	ND
Acenaphthylene	ND	ND	ND	-ND	ND	ND
K001 Total	110	2510	315	386	1904	5990
Benzene	ND	5.1	ND	ND	ND	37
Toluene	ND	6.4	52	260	510	130
Ethylbenzene	ND	ND	ND	ND	ND	34
Xylenes (Total)	ND	16	ND	ND	ND	ND
Acetone	ND	ND	ND	ND	740	1500

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[1] Elevated detection limit for EPA Method 8270 analysis in wells MW4B, MW15, MW16, and MW17 (see Laboratory Data Sheets)

[2] All constituent concentrations are given in ug/l, or parts per billion.

[3] ND = Non-detect.

TABLE B3

MANOR TIMBER COMPANY

KOO1 CONSTITUENTS/BTEX
17 JANUARY 1996

CONSTITUENT	WELL					
	MW3	MW4B	MW11	MW15	MW16[1]	MW17
Naphthalene	140[2]	2500	150	ND	810	5600
Acenaphthene	ND[3]	280	54	ND	ND	540
Phenanthrene & Anthracene	ND	ND	ND	ND	ND	ND
Fluoranthene	ND	ND	ND	ND	ND	ND
Tetrachlorophenols	ND	ND	ND	ND	ND	ND
Phenol	ND	ND	ND	35	2000	1400
Pentachlorophenol	ND	ND	ND	ND	ND	ND
2-Chlorophenol	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene	ND	ND	ND	ND	ND	ND
2,4 Dimethylphenol	ND	ND	13	23	ND	920
Fluorene	ND	ND	ND	ND	ND	ND
Carbazol	ND	240	30	ND	ND	530
Acenaphthylene	ND	ND	ND	ND	ND	ND
K001 Total	140	3020	247	58	2810	8990
Benzene	ND	ND	ND	ND	ND	ND
Toluene	ND	5.8	39	6.3	1400	150
Ethylbenzene	ND	5.1	ND	ND	ND	30
Xylenes (Total)	ND	19	ND	ND	ND	73

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[1] MEK was also detected at 320 ppb.

[2] All constituent concentrations are given in ug/l, or parts per billion.

[3] ND = Non-detect.

Table B4. Groundwater Analytical Summary (VOCs)
Manor Timber Company
Manor, Clinch County, GA
Permit Number: HW-047(D)

Well Number	Sample Date	Acetone	Benzene	Ethyl-benzne	2-Hexanone	Methyl Ethyl Ketone*	4-Methyl 2-Pentanone	Toluene	Xylenes (Total)	Styrene**	TOTAL
MW-3	Jan. 96		ND	ND				ND	ND	NA	ND
	Jul. 96	ND	ND	ND				ND	ND	NA	ND
	Jan. 97		<1	<1				<1	<2	NA	ND
	Jul. 97	<50	<5	<5		<25		<5	<5	NA	ND
	Jan. 98	<50	<5	<5		<25		<5	<5	NA	ND
	Jul. 98		<5	<5	<25		<25	<5	<5	NA	ND
	Jan. 99		<5	<5	<25		<25	<5	<5	NA	ND
	Jul. 99		<5	<5	<25		<25	<5	<10	NA	ND
	Jan. 00	<5	<5	<5	<25	<5	<25	<5	<10	NA	ND
	Jul. 00	<25	<5	<5	<25	<25	<25	<5	<10	NA	ND
	Jan. 01	<25	<5	<5	<25	<25	<25	<5	<10	NA	ND
	Jul. 01	<25	<5	<5	<25	<25	<25	<5	<10	NA	ND
	Jan. 02	<25	<5	<5	<25	<25	<25	<5	<10	NA	ND
	Jul. 02	<25	<5	<5	<25	<25	<25	<5	<10	NA	ND
	Jan. 03	<25	<5	<5	<25	<25	<25	<5	<10	NA	ND
	Jul. 03	<25	<1	<1	<10	<10	<10	<1	<2	NA	ND
	Jan. 04	<25	<1	<1	<10	<10	<10	<1	<2	NA	ND
	Jul. 04	<25	<1	<1	<10	<10	<10	<1	<2	NA	ND
	Jan. 05	<25	<1	<1	<10	<10	<10	<1	<2	NA	ND
	Jul. 06	<25	<1	<1	<10	<10	<10	<1	<2	NA	ND
	Jan. 07	<25	<1	<1	<10	<10	<1	<1	<2	NA	ND
	Jul. 07	<25	<1	<1	<10	<10	<1	<1	<2	NA	ND
	Jan. 08	<25	<1	<1	<10	<10	<1	<1	<2	NA	ND
	Jul. 08	<25	<1	<1	<10	<10	<1	<1	<2	NA	ND
	Jan. 09	<25	<1	<1		<10		<1	<2	NA	ND
	Jul. 09	<23	<10	<1		<25		<1	<2	NA	ND
	7/7/10	<25	<1	<1	<10	<10	<1	<1	<3	NA	ND
	1/17/11	<25	<1	<1	<10	<10	<10	<1	<3	NA	ND
	8/7/14	<25	<1	<1	<10	<10	<5	<1	<3	NA	ND
	10/25/17	<25	<1	<1	<10	<10	<10	<1	<3	NA	ND
	5/25/19	<25	<1	<1	<5	<5	5.5	<1	<2	NA	5.5
	6/28/22	<50	<5	<5	<10	<50	<10	<5	<5	NA	ND
MW-3B	1/8/10	<25	<1	<1	<10	<10	<10	<1	<2	NA	ND
	7/10/12	<25	<1	<1	<10	<10	<10	<1	<3	NA	ND
	8/7/14	<25	<1	<1	<10	<10	<5	<1	<3	NA	ND
	10/25/17	<25	<1	<1	<10	<10	<10	<1	<3	NA	ND
	5/25/19	<25	<1	<1	<5	<5	5.7	<1	<2	NA	5.7
	6/28/22	<50	<5	<5	<10	<50	<10	<5	<5	NA	ND
MW-4B	Jan. 96		ND	5.1				5.8	19	NA	29.9
	Jul. 96	ND	5.1	ND				6.4	16	NA	27.5
	Jan. 97		3.1	6.4				4.5	27	NA	41
	Jul. 97	<50	<5	5.3		<25		5.7	18	NA	29
	Jan. 98	<50	<5	5.1		<25		<5	17	NA	22.1
	Jul. 98		<5	6.2	<25		<25	<5	21	NA	27.2
	Jan. 99		8.2	<5	<25		<25	<5	7.4	NA	15.6
	Jul. 99		14	6	<25		<25	<5	16	NA	36
	Jan. 00	<5	19	<5	,25	<5	<25	<5	<10	NA	19
	Jul. 00	<25	23	7.9	<25	<25	<25	<5	<10	NA	30.9
	Jan. 01	<25	16	5	<25	<25	<25	<5	<10	NA	21
	Jul. 01	<25	17	<5	<25	<25	<25	<5	<10	NA	17
	Jan. 02	<25	13	<5	<25	<25	<25	<5	<10	NA	13
	Jul. 02	<25	13	<5	<25	<25	<25	<5	<10	NA	13
	Jan. 03	<25	21	7.1	<25	<25	<25	<5	<10	NA	28.1
	Jul. 03	<25	14	3.9	<10	<10	<10	<1	5.2	NA	23.1
	Jan. 04	<25	9.1	2.7	<10	<10	<10	<1	4.4	NA	16.2
	Jul. 04	<120	5.1	<5	<50	<50	<50	<5	<10	NA	5.1
	Jan. 05	<25	3.3	1.2	<10	<10	<10	<1	2.5	NA	7.0

Table B4. Groundwater Analytical Summary (VOCs)
Manor Timber Company
Manor, Clinch County, GA
Permit Number: HW-047(D)

Well Number	Sample Date	Acetone	Benzene	Ethyl-benzne	2-Hexanone	Methyl Ethyl Ketone*	4-Methyl 2-Pentanone	Toluene	Xylenes (Total)	Styrene**	TOTAL
MW-4B	Jul. 06	<25	3.8	1.1	<10	<10	<10	2.1	3.1	NA	10.1
	Jan. 07	34	17	5	<10	<10	<10	10	9.4	NA	75.4
	Jul. 07	<25	8	2.5	<10	<10	<10	3	4.9	NA	18.4
	Jan. 08	<25	8.8	3	60	NR	<10	4	6.2	NA	82
	Jul. 08	<50	9.2	3.4	<20	<20	<20	21	7.6	NA	41.2
	Jan. 09	<25	5.51	1.7				1.06	1.28	NA	9.55
	Jul. 09		BRL								ND
	1/8/10	<25	3.03	<1	1.22	<10	<10	<1	<3	NA	4.25
	7/7/10	<125		<5	<50	<50	<50	<5	<15	NA	ND
	1/17/11	<25	2.84	1.31	<10	<10	<5	2.3	1.13	NA	7.58
	2/12/12	<25	1.58	<1	<10	<10	<10	<1	<3	NA	1.58
	7/10/12	<25	<5	<5	<50	<50	<50	<5	<15	NA	ND
	2/18/13	<25	2.08	<1	<10	<10	<5	<1	<3	NA	2.08
	8/21/13	<25	1.36	<1	<10	<10	<5	<1	<3	NA	1.36
	2/24/14	<25	1.63	<1	<10	<10	<5	<1	<3	NA	1.63
	8/8/16	<25	<1	<1	<10	<10	<5	<1	<3	NA	ND
	2/9/15	<25	<1	<1	<10	<10	<5	<1	<3	NA	ND
	8/11/15	<25	<1	<1	<10	<10	<5	<1	<3	NA	ND
	2/12/16	<25	<1	<1	<10	<10	<1	<1	<3	NA	ND
	10/26/17	<25	1.3	1.1	<10	<10	<10	<1	<3	NA	2.4
	5/25/19	<25	<1	<1	<5	<5	<5	<1	<2	NA	ND
	6/29/22	<50	<5	<5	<10	<50	<10	<5	<5	NA	ND
MW-5	1/8/10	<25	<1	<1	<10	<10	<10	<1	<2	NA	ND
	7/10/12	<25	<1	<1	<10	<10	<10	<1	<3	NA	ND
	8/7/14	<25	<1	<1	<10	<10	<5	<1	<3	NA	ND
	10/25/17	<25	<1	<1	<10	<10	<10	<1	<3	NA	ND
	5/24/19	<25	<1	<1	<5	<5	<5	<1	<2	NA	ND
	6/28/22	<50	<5	<5	<10	<50	<10	<5	<5	NA	ND
MW-6	Jan. 00	<5	<5	<5	<25	<5	<25	<5	<10	NA	ND
	Jul. 00	<25	<5	<5	<25	<25	<25	<5	<10	NA	ND
	Jan. 01	<25	<5	<5	<25	<25	<25	<5	<10	NA	ND
	Jul. 01	<25	<5	<5	<25	<25	<25	<5	<10	NA	ND
	Jan. 02	<25	<5	<5	<25	<25	<25	<5	<10	NA	ND
	Jul. 02	<25	<5	<5	<25	<25	<25	<5	<10	NA	ND
	Jan. 03	<25	<5	<5	<25	<25	<25	<5	<10	NA	ND
	Jul. 03	<25	<1	<1	<10	<10	<10	<1	<2	NA	ND
	Jan. 04	<25	<1	<1	<10	<10	<10	<1	<2	NA	ND
	Jul. 04	<25	<1	<1	<10	<10	<10	<1	<2	NA	ND
	Jan. 05	<25	<1	<1	<10	<10	<10	<1	<2	NA	ND
	Jul. 06	<25	<1	<2	<10	<10	<10	<1	<10	NA	ND
	Jan. 07	<25	<1	<1	<10	<10	<10	<1	<2	NA	ND
	Jul. 07	<25	<1	<1	<10	<10	<10	<1	<2	NA	ND
	Jan. 08	<25	<1	<1	<10	NR	<10	<1	<2	NA	ND
	Jul. 08	<25	<1	<1	<10	<10	<10	<1	<2	NA	ND
	1/8/10	<25	<1	<1	<10	<10	<10	<1	<3	NA	ND
	1/17/11	<25	<1	<1	<10	<10	<10	<1	<3	NA	ND
	7/10/12	<25	<1	<1	<10	<10	<10	<1	<3	NA	ND
	8/7/14	<25	<1	<1	<10	<10	<5	<1	<3	NA	ND
	10/25/17	<25	<1	<1	<10	<10	<10	<1	<3	NA	ND
	5/25/19	<25	<1	<1	<5	<5	<5	<1	<2	NA	ND
	6/28/22	<50	<5	<5	<10	<50	<10	<5	<5	NA	ND
MW-7	7/6/10	<25	<1	<1	<10	<10	<10	<1	<3	NA	ND
	7/10/12	<25	<1	<1	<10	<10	<10	<1	<3	NA	ND
	8/7/14	<25	<1	<1	<10	<2	<5	<1	<3	NA	ND
	10/23/17	<25	<1	<1	<10	<10	<10	<1	<3	NA	ND
	5/24/19	<25	<1	<1	<5	<5	<5	<1	<2	NA	ND
	6/28/22	<50	<5	<5	<10	<50	<10	<5	<5	NA	ND

Table B4. Groundwater Analytical Summary (VOCs)
Manor Timber Company
Manor, Clinch County, GA
Permit Number: HW-047(D)

Well Number	Sample Date	Acetone	Benzene	Ethyl-benzne	2-Hexanone	Methyl Ethyl Ketone*	4-Methyl 2-Pentanone	Toluene	Xylenes (Total)	Styrene**	TOTAL
MW-8	7/6/10	<25	<1	<1	<10	<10	<10	<1	<3	NA	ND
	7/10/12	<25	<1	<1	<10	<10	<10	<1	<3	NA	ND
	8/7/14	<25	<1	<1	<10	<2	<5	<1	<3	NA	ND
	10/25/17	<25	<1	<1	<10	<10	<10	<1	<3	NA	ND
	5/23/19	<25	<1	<1	<5	<5	<5	<1	<2	NA	ND
	6/28/22	<50	<5	<5	<10	<50	<10	<5	<5	NA	ND
MW-9	7/6/10	<25	<1	<1	<10	<10	<10	<1	<3	NA	ND
	2/12/12	<25	<1	<1	<10	<10	<10	<1	<3	NA	ND
	7/10/12	<25	<1	<1	<10	<10	<10	<1	<3	NA	ND
	2/18/13	<25	<1	<1	<10	<10	<5	<1	<3	NA	ND
	8/21/13	<25	<1	<1	<10	<10	<5	<1	<3	NA	ND
	2/24/14	<25	<1	<1	<10	<10	<5	<1	<3	NA	ND
	8/8/14	<25	<1	<1	<10	<10	<5	<1	<3	NA	ND
	2/9/15	<25	<1	<1	<10	<10	<5	<1	<3	NA	ND
	8/11/15	<25	<1	<1	<10	<10	<5	<1	<3	NA	ND
	2/12/16	<25	<1	<1	<10	<2	<5	<1	<3	NA	ND
	10/25/17	<25	<1	<1	<10	<10	<10	<1	<3	NA	ND
	5/24/19	<25	<1	<1	<5	<5	<5	<1	<2	NA	ND
	6/28/22	<50	<5	<5	<10	<50	<10	<5	<5	NA	ND
MW-10	7/6/10	<25	<1	<1	<10	<10	<10	<1	<3	NA	ND
	7/10/12	<25	<1	<1	<10	<10	<10	<1	<3	NA	ND
	8/7/14	<25	<1	<1	<10	<2	<5	<1	<3	NA	ND
	10/25/17	<25	<1	<1	<10	<10	<10	<1	<3	NA	ND
	5/24/19	<25	<1	<1	<5	<5	<5	<1	<2	NA	ND
	6/28/22	<50	<5	<5	<10	<50	<10	<5	<5	NA	ND
MW-11	Jan. 96		ND	ND				39	ND	NA	39
	Jul. 96	ND	ND	ND				52	ND	NA	52
	Jan. 97		<1	<1				22	<2	NA	22
	Jul. 97	<50	<5	<5		<25		8.2	<5	NA	8.2
	Jan. 98	<50	<5	<5		<25		5.7	<5	NA	5.7
	Jul. 98		<5	<5	<25		<25	19	<5	NA	19
	Jan. 99		<5	<5	<25			51	<5	NA	51
	Jul. 99		<5	<5	<25		<25	140	<10	NA	140
	Jan. 00	<5	<10	<10	<25	<5	<50	230	<20	NA	230
	Jul. 00	<25	<5	<5	<25	<25	<25	<5	<10	NA	ND
	Jan. 01	<25	<5	<5	<25	<25	<25	<5	<10	NA	ND
	Jul. 01	<25	<5	<5	<25	<25	<25	<5	<10	NA	ND
	Jan. 02	<25	<5	<5	<25	<25	<25	<5	<10	NA	ND
	Jul. 02	<25	<5	<5	<25	<25	<25	75	<10	NA	75
	Jan. 03	<25	<5	<5	<25	<25	<25	<5	<10	NA	ND
	Jul. 03	<25	<1	<1	<10	<10	<10	6.8	<2	NA	6.8
	Jan. 04	<25	<1	<1	<10	<10	<10	<1	<2	NA	ND
	Jul. 04	<25	<1	<1	<10	<10	<10	<1	<2	NA	ND
	Jan. 05	<25	<1	<1	<10	<10	<10	<1	<2	NA	ND
	Jul. 06	<25	<1	<1	<10	<10	<10	25	<20	NA	25
	Jan. 07	<23	<1	1.1	<10	<10	<10	2.5	<2	NA	3.6
	Jul. 07	<25	<1	<1	<10	<10	<10	<1	<2	NA	ND
	Jan. 08	<25	<1	<1	<10	NR	<10	<1	<2	NA	ND
	Jul. 08	<25	<1	<1	<10	NR	<10	<1	<2	NA	ND
	Jan. 09										ND
	Jul. 09	<25	<1	<10		<10		<1	<2	NA	ND
	1/8/10	<25	<1	<1	7.24	<10	<10	<1	<2	NA	7.24
	7/7/10	<25	<1	<1	<10	<10	<5	<1	<3	NA	ND
	1/17/11	<25	<1	<1	<10	<10	<10	3.03	<2	NA	3.03
	2/12/12	<25	<1	<1	<10	<10	<5	<1	<3	NA	ND
	7/10/12	<25	<1	<1	<10	<10	<10	<1	<3	NA	ND
	2/18/13	<25	<1	<1	<10	<10	<5	1.1	<3	NA	1.1

Table B4. Groundwater Analytical Summary (VOCs)
Manor Timber Company
Manor, Clinch County, GA
Permit Number: HW-047(D)

Well Number	Sample Date	Acetone	Benzene	Ethyl-benzne	2-Hexanone	Methyl Ethyl Ketone*	4-Methyl 2-Pentanone	Toluene	Xylenes (Total)	Styrene**	TOTAL
MW-11	8/21/13	<25	<1	<1	<10	<10	<5	<1	<3	NA	ND
	2/24/14	<25	<1	<1	<10	<10	<5	<1	<3	NA	ND
	8/8/14	<25	<1	<1	<10	<10	<5	<1	<3	NA	ND
	2/9/15	<25	<1	<1	<10	<10	<5	<1	<3	NA	ND
	8/11/15	<25	<1	<1	<10	<10	<5	<1	<3	NA	ND
	2/12/16	<25	<1	<1	<10	<10	<5	<1	<3	NA	ND
	10/25/17	<25	<1	<1	<10	<10	<10	<1	<3	NA	ND
	5/24/19	<25	<1	<1	<5	<5	<5	<1	<2	NA	ND
	6/29/22	<50	<5	<5	<10	<50	<10	<5	<5	NA	ND
MW-12	7/6/10	<25	<1	<1	<10	<10	<10	<1	<3	NA	ND
	10/23/17	<25	<1	<1	<10	<10	<10	<1	<3	NA	ND
	5/23/19	<25	<1	<1	<5	<5	<5	<1	<2	NA	ND
MW-13	7/6/10	<25	<1	<1	<10	<10	<10	<1	<3	NA	ND
	10/23/17	<25	<1	<1	<10	<10	<10	<1	<3	NA	ND
	5/24/19	<25	<1	<1	<5	<5	<5	<1	<2	NA	ND
MW-14	7/6/10	<25	<1	<1	<10	<10	<10	<1	<3	NA	ND
	10/23/17	<25	<1	<1	<10	<10	<10	<1	<3	NA	ND
	5/24/19	<25	<1	<1	<5	<5	<5	<1	<2	NA	ND
MW-15	Jan. 96		ND	ND				6.3	ND	NA	6.3
	Jul. 96	ND	ND	ND				260	ND	NA	260
	Jan. 97		<5	<5				170	<10	NA	170
	Jul. 97	63	<5	<5		<25		460	<5	NA	523
	Jan. 98	<50	<5	<5		<25		110	<5	NA	110
	Jul. 98		<5	<5	<25		<25	79	<5	NA	79
	Jan. 99		<5	<5	<25			63	<5	NA	63
	Jul. 99		<5	<5	<25		<25	11	<10	NA	11
	Jan. 00	<5	<5	<5	<25	<5	<25	8.4	<10	NA	8.4
	Jul. 00	<25	<5	<5	<25	<25	<25	<5	<10	NA	ND
	Jan. 01	<25	<5	<5	<25	<25	<25	<5	<10	NA	ND
	Jul. 01	<25	<5	<5	<25	<25	<25	<5	<10	NA	ND
	Jan. 02	<25	<5	<5	<25	<25	<25	8	<10	NA	8
	Jul. 02	<25	<5	<5	<25	<25	<25	<5	<10	NA	ND
	Jan. 03	<25	<5	<5	<25	<25	<25	<5	<10	NA	ND
	Jul. 03	27	<1	2.4	<10	<10	<10	59	>2	NA	88.4
	Jan. 04	<25	<1	1.3	<10	<10	<10	12	<2	NA	13.3
	Jul. 04	<25	<1	1.1	<10	<10	<10	18	<2	NA	19.1
	Jan. 05	<25	<1	<1	<10	<10	<10	3.3	<2	NA	3.3
	Jul. 06	<25	<1	2.6	<10	<10	<10	14	<2	NA	16.6
	Jan. 07	<25	<1	<1	<10	<10	<10	1	<2	NA	1
	Jul. 07	<25	<1	<1	<10	99	<10	3.2	>2	NA	102.2
	Jan. 08	<25	<1	<1	<10	NR	<10	<1	<2	NA	ND
	Jul. 08	<25	<1	1.9	<10	<10	<10	3.6	<2	NA	5.5
	Jan. 09	<25	<1	<1		<10		<25	<2	NA	ND
	Jul. 09	BRL	BRL	1.47		BRL		2.96	BRL	NA	4.43
	1/8/10	<25	<1	<1	<10	<10	<10	<1	<3	NA	ND
	7/7/10	<25	<1	<1	<10	<10	<10	<1	<3	NA	ND
	1/17/11	<25	<1	<1	<10	<10	<10	<1	<3	NA	ND
	7/10/12	<25	<1	<1	<10	<10	<10	<1	<3	NA	ND
	8/8/14	<25	<1	<1	<10	<10	<5	1.13	<3	NA	1.13
	10/25/17	<25	<1	<1	<10	<10	<10	<1	<3	NA	ND
	5/25/19	<25	<1	<1	<5	<5	<5	1.1	<2	NA	1.1
	6/29/22	<50	<5	<5	<10	<50	<10	<5	<5	NA	ND

Table B4. Groundwater Analytical Summary (VOCs)
Manor Timber Company
Manor, Clinch County, GA
Permit Number: HW-047(D)

Well Number	Sample Date	Acetone	Benzene	Ethyl-benzne	2-Hexanone	Methyl Ethyl Ketone*	4-Methyl 2-Pentanone	Toluene	Xylenes (Total)	Styrene**	TOTAL
MW-16	Jan. 96		ND	ND				1400	ND	NA	1400
	Jul. 96	740	ND	ND				510	ND	NA	1250
	Jan. 97		<10	18				580	<20	NA	598
	Jul. 97	870	<10	<10		900		620	<10	NA	2390
	Jan. 98	800	<50	<50		590		570	<50	NA	1960
	Jul. 98		<5	<5	<25		<25	180	<50	NA	180
	Jan. 99		<50	<50	<25		<25	830	<50	NA	830
	Jul. 99		<25	<25	<120		<120	790	<50	NA	790
	Jan. 00	800	<25	<25	<120	390	<120	880	<50	NA	2070
	Jul. 00	130	<10	<10	<50	91	<50	370	<20	NA	591
	Jan. 01	<250	<50	<50	<250	<250	<250	1800	<100	NA	1800
	Jul. 01	1100	<100	<100	<500	<500	<500	2000	<200	NA	3100
	Jan. 02	1200	<50	<50	<250	570	<250	1600	<200	NA	3370
	Jul. 02	540	<50	<50	<250	310	<250	1400	<100	NA	2250
	Jan. 03	370	<10	18	<100	210	<100	1800	<10	NA	2398
	Jul. 03	490	<10	19	<100	350	<100	1700	<2	NA	2559
	Jan. 04	340	<10	15	<100	220	<100	1500	<20	NA	2075
	Jul. 04	<200	<50	<50	<500	<500	<500	1500	<100	NA	1500
	Jan. 05	<620	<25	<25	<250	<250	<250	1600	<50	NA	1600
	Jul. 06	270	<10	<10	<100	130	<100	1800	<20	NA	2200
	Jan. 07	200	<2	10	<20	110	<20	1400D	<4	NA	1720
	Jul. 07	<500	<20	<20	<200	<200	<200	2100	<40	NA	2100
	Jan. 08	180	<1	12	10	NR	<10	1800D	4.1	NA	2006.1
	Jul. 08	<500	<20	<20	<200	<200	<200	2100	<40	NA	2100
	Jan. 09	<500	<200	<20		<200		1030	<40	NA	1030
	Jul. 09	BRL	BRL	BRL		BRL		2040	BRL	NA	2040
	1/8/10	<25	<1	<1	<10	<10	<10	1310	10.7	NA	1320.7
	1/17/11	<25	<1	<1	<10	<10	<10	1020	<30	NA	1020
	7/10/12	110	<5	7.2	<10	35		1500	<5	NA	1652.2
	8/8/14	<500	<20	<20	<200	<200	<100	1680	<60	NA	1680
	10/26/17	<250	<10	11.0	<100	<100	<100	1500	<30	NA	1511
	5/25/19	124	<1	9.2	<5	62.6	<5	1240	3.2	NA	1439
	5/25/2019 (DUP-1)	125	<1	9.3	<5	62.1	<5	1300	3.2	NA	1499.6
	6/29/22	320	<5	9.9	13.0	160	<10	2200	<5	NA	2702.9
	6/29/2022 (DUP-1)	320	<5	9.8	13.0	170	<10	2000	<5	NA	2512.8
MW-17	Jan. 96		ND	30				150	73	NA	253
	Jul. 96	1500	37	34				130	ND	NA	1701
	Jan. 97		25	31				130	86	NA	272
	Jul. 97	360	27	31		170		130	77	NA	795
	Jan. 98	210	13	22		72		120	54	NA	491
	Jul. 98		34	36	<25		<25	150	90	NA	310
	Jan. 99		24	30	<25		<25	190	72	NA	316
	Jul. 99		22	24	52		<50	200	56	NA	354
	Jan. 00	410	16	17	25	138	<25	200	36	NA	842
	Jul. 00	370	25	23	<50	160	<50	270	51	NA	899
	Jan. 01	280	17	19	<50	140	<50	280	39	NA	775
	Jul. 01	190	<10	<10	<50	77	<50	210	<20	NA	477
	Jan. 02	270	5.6	7.4	<25	88	<25	160	<20	NA	531
	Jul. 02	120	<10	<10	<50	<50	<50	160	<20	NA	280
	Jan. 03	140	7	10	<20	<20	<20	230	18	NA	405
	Jul. 03	56	3.9	4.8	<20	31	<20	240	7.2	NA	342.9
	Jan. 04	52	2.7	3.7	<20	29	<20	190	6.5	NA	283.9
	Jul. 04	<250	<10	<10	<100	<100	<100	360	<20	NA	360
	Jan. 05	<250	<10	11	<100	<100	<100	390	<20	NA	401
	Jul. 06	<50	<5	6.4	<50	<50	<50	340	<10	NA	346.4
	Jan. 07	150	8.2	16	<20	72	<20	540D	15.1	NA	801.3
	Jul. 07	230	11	18	<50	95	<50	600	24.5	NA	978.5

Table B4. Groundwater Analytical Summary (VOCs)
Manor Timber Company
Manor, Clinch County, GA
Permit Number: HW-047(D)

Well Number	Sample Date	Acetone	Benzene	Ethyl-benzne	2-Hexanone	Methyl Ethyl Ketone*	4-Methyl 2-Pentanone	Toluene	Xylenes (Total)	Styrene**	TOTAL
MW-17	Jan. 08	120	9.2	20	<10	NR	<10	640D	24.5	NA	813.7
	Jul. 08	180	7	12	<50	74	<10	810	15.1	NA	1098.1
	Jan. 09	<250	10.8	23.3		<100		660	<20	NA	694.1
	Jul. 09	<50	4.9	11	7.3	41	<10	370	14	NA	448.2
	1/8/10	<500	<20	<20	<200	<200	<200	576	<60	NA	576
	7/7/10	<125	5.15	11.9	<50	<50	<50	482	5.05	NA	504.1
	1/17/11	<125	<5	11	<50	<50	<50	496	<15	NA	507
	7/10/12	<125	6.15	11.2	<50	<50	<50	512	<15	NA	529.35
	8/8/14	130	7.2	16	12	53	4	670	24	NA	916.2
	10/26/17	140	7.5	18.0	<100	<100	<100	640	15	NA	820.5
	5/25/19	81.7	4.8	12.6	23.8	25.4	<5	419	20.6	NA	587.9
	6/29/22	140	31.0	30.0	<10	<50	<10	120	70.0	7.2	398.2
	10/18/22	NA	NA	NA	NA	NA	NA	NA	NA	5.8	5.8
MW-18	Jan. 97		<10	5.5				60	1.7	NA	67.2
	Jul. 97	<50	<5	6.3		<25		94	<5	NA	100.3
	Jan. 98	<50	<5	5.2		25		100	<5	NA	130.2
	Jul. 98		<5	9.9	<25		<25	130	7	NA	146.9
	Jan. 99		<5	10	<25		<25	92	5	NA	107
	Jul. 99		<5	9.4	<25		<25	140	<10	NA	149.4
	Jan. 00	<5	<5	14	<25	<5	<25	200	<10	NA	214
	Jul. 00	<50	<10	19	<50	<50	<50	280	<20	NA	299
	Jan. 01	<25	<5	16	<25	<25	<25	84	<10	NA	100
	Jul. 01	<50	<10	16	<50	<50	<50	200	<20	NA	216
	Jan. 02	<50	<10	26	<50	<25	<50	280	<20	NA	306
	Jul. 02	<120	<25	31	<120	<120	<120	870	<50	NA	901
	Jan. 03	125	<5	36	<20	74	<20	580	6.4	NA	821.4
	Jul. 03	<120	<5	32	<50	<50	<50	350	<10	NA	382
	Jan. 04	<120	<5	24	<50	64	<50	190	<10	NA	278
	Jul. 04	<500	<20	31	<200	<200	<206	550	<40	NA	581
	Jan. 05	<50	2.1	27	<20	29	<20	170	<4	NA	228.1
	Jul. 06	35	2.9	34	<10	25	<10	180D	6.6	NA	283.5
	Jan. 07	<25	2.6	26	<10	<10	<10	110	3.8	NA	142.4
	Jul. 07	<50	5.5	50	<20	24	<20	660	10	NA	749.5
	Jan. 08	44	2.9	34	<10	NR	<10	200D	7.1	NA	288
	Jul. 08	<25	3.6	38	<10	<10	<10	320D	8.3	NA	369.9
	Jan. 09	47.7	2.23	22.2		58		134	4.61	NA	268.74
	Jul. 09	BRL	2.35	27.7		BRL		65.6	5.43	NA	101.08
	1/18/10	88.4	<2	16.1	<20	68	<20	165	<6	NA	337.5
	7/7/10	<125	<5	18	<50	<50	<50	110	<15	NA	128
	1/17/11	<50	2.42	29.9	<20	94.6	<20	406	<6	NA	532.92
	2/12/12	72.7	1.97	24.5	<10	75.5	<10	404	5.41	NA	584.08
	7/10/12	<50	<2	11.3	<20	<20	<20	85.2	<3	NA	96.5
	2/18/13	107	3.09	29	<10	93.6	<10	505	5.83	NA	743.52
	8/21/13	<250	<10	31.1	<100	126	<50	875	<30	NA	1032.1
	2/24/14	<50	2.26	23.4	<20	43.7	<20	343	4.36	NA	416.72
	8/8/14	50.6	2.06	23.8	<20	37.1	<10	244	<6	NA	357.56
	2/9/15	<250	<10	29.9	<100	<100	<50	457	<30	NA	486.9
	8/11/15	46.7	3.24	30.6	<10	59.9	<5	418	5.67	NA	564.11
	2/12/16	<250	<10	24.4	<100	<100	<50	335	<30	NA	359.4
	10/26/17	29.0	2.8	20.0	<10	13.0	<10	160	4.2	NA	229.0
	10/26/2017 (DUP-1)	30.0	2.8	20.0	<10	14.0	<10	190	4.4	NA	261.2
	5/25/19	33.1	2.5	19.6	<5	14.0	<5	236	4.2	NA	309.4
	6/29/22	<50	<5	13.0	<10	<50	<10	79.0	<5	NA	92.0

Table B4. Groundwater Analytical Summary (VOCs)
Manor Timber Company
Manor, Clinch County, GA
Permit Number: HW-047(D)

Well Number	Sample Date	Acetone	Benzene	Ethyl-benzne	2-Hexanone	Methyl Ethyl Ketone*	4-Methyl 2-Pentanone	Toluene	Xylenes (Total)	Styrene**	TOTAL
MW-19	7/6/10	<25	<1	<1	<10	<10	<10	<1	<3	NA	ND
	2/12/12	<25	<1	<1	<10	<10	<10	<2	<3	NA	ND
	7/12/12	<25	<1	<1	<10	<10	<10	<1	<3	NA	ND
	2/18/13	<25	<1	<1	<10	<10	<10	<2	<3	NA	ND
	8/21/13	<25	<1	<1	<10	<10	<10	<2	<3	NA	ND
	2/24/14	<25	<1	<1	<10	<10	<10	<2	<3	NA	ND
	8/8/14	<25	<1	<1	<10	<10	<5	<1	<3	NA	ND
	2/9/15	<25	<1	<1	<10	<10	<5	<1	<3	NA	ND
	8/11/15	<25	<1	<1	<10	<10	<5	<1	<3	NA	ND
	2/12/16	<25	<1	<1	<10	<10	<5	<1	<3	NA	ND
	10/23/17	<25	<1	<1	<10	<10	<10	<1	<3	NA	ND
	5/25/19	<25	<1	<1	<5	<5	<5	<1	<2	NA	ND
	6/28/22	<50	<5	<5	<10	<50	<10	<5	<5	NA	ND

NOTES:

All constituents levels are shown in parts per billion (µg/l).

D = Diluted sample

ND = Not Detected

NA = Not Analyzed

BRL - Below reporting limits

All data prior to 2016 was collected by previous consultants. Envirorisk cannot guarantee the validity of the data.

Wells MW-1, MW-1A, and AB5 were not sampled and are not included on this table.

Only detected constituents are listed on table. Samples were analyzed for the site specific list of VOCs. Vinyl chloride was analyzed for but not detected.

*** Methyl-ethyl ketone is also referred to as 2-Butanone in laboratory reports.**

**** Styrene was added to the Permit in October 2022.**

MW-17 was the only well sampled on 10-18-2022.

Table B5. Groundwater Analytical Summary (SVOCs)
Manor Timber Company
Manor, Clinch County, GA
Permit Number: HW-047(D)

Well Number	MW-3													
Screened Interval	32-37'													
Sample Date	Jan. 96	Jul. 96	Jan. 97	Jul. 97	Jan. 98	Jul. 98	Jan. 99	Jul. 99	Jan. 00	Jul. 00	Jan. 01	Jul. 01	Jan. 02	Jul. 02
Test Method	8270D													
Acenaphthene	ND	ND	<20	<10	<10	<20	<10	<10	<10	<10	<10	<10	<10	<10
Acenapthylene	ND	ND	<20	<10	<10	<20	<10	<10	<10	<10	<10	<10	<10	<10
Acetophenone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	ND	ND	<20	<10	<10	<20	<10	<10	<10	<10	<10	<10	<10	<10
Carbazole	ND	ND	<20	<10	<10	<20	<10	<10	<10	<10	<10	<10	<10	<10
2-Chlorophenol	ND	ND	<20	<10	<10	<20	<10	<10	<10	<10	<10	<10	<10	<10
Dibenzofuran		ND	<20	NR	<10	<20	<10	<10	<10	<10	<10	<10	<10	<10
2,4-Dimethylphenol	ND	ND	<100	<10	<10	<20	<10	<10	<10	<10	<10	<10	<10	<10
Fluoranthene	ND	ND	<20	<10	<10	<20	<10	<10	<10	<10	<10	<10	<10	<10
Fluorene	ND	ND	<20	NR	<10	<20	<10	<10	<10	<10	<10	<10	<10	<10
2-Methylnaphthalene	ND	ND	<20	NR	<10	<20	<10	<10	<10	<10	<10	<10	<10	<10
2-Methylphenol (o-cresol)		ND	<20	NR	<10	<20	<10	<10	<10	<10	<10	<10	<10	<10
3,4-Methylphenol (m+p-cresol)			<100	<10	<10	NR	<10	<10	<10	<10	<10	<10	<10	<10
4-Methylphenol														
Naphthalene	140	110	210	140	120	120	81	98	83	52	68	56	33	38
Pentachlorophenol	ND	ND	<100	<50	<50	<100	<50	<50	<50	<50	<50	<50	<50	<50
Phenanthrene	ND	ND	<20	<50	<50	<20	<10	<10	<10	<10	<10	<10	<10	<10
Phenol	ND	ND	<20	<10	<10	<20	<10	<10	<10	<10	<10	<10	<10	<10
2,3,4,6-Tetrachlorophenol	ND	ND	<100	<10	<10	<20	<10	<10	<10	<10	<10	<10	<10	<10
2,4,6-Trichlorophenol														
Total SVOCs	140	110	210	140	120	120	81	98	83	52	68	56	33	38

NOTES:

All constituents levels are shown in micrograms per liter (ug/l).

D = Diluted sample

ND = Not Detected **NA = Not Analyzed**

NR = Not Reported

All data prior to 2017 was collected by previous consultants. Envirorisk cannot guarantee the validity of the data.

When transcribing data collected by previous consultants, LT (Less Than) was rewritten as <.

Wells MW-1, MW-1A, and AB5 were not sampled and are not included on this table.

Only detected constituents are listed on table. Samples were analyzed for the site specific list of SVOCs.

Acetophenone was added to the Permit in October 2022.

Table B5. Groundwater Analytical Summary (SVOCs)
Manor Timber Company
Manor, Clinch County, GA
Permit Number: HW-047(D)

Well Number	MW-3													
Screened Interval	32-37'													
Sample Date	Jan. 03	Jul. 03	Jan. 04	Jul. 04	Jan. 05	Jul. 06	Jan. 07	Jul. 07	Jan. 08	Jul. 08	Jan. 09	7/23/09	7/7/10	1/17/11
Test Method	8270D													
Acenaphthene	<10	<10	<10	<10	<10	<10	<9.4	<9.7	<9.4	<9.8	<10	<10	<10	<10
Acenapthylene	<10	<10	<10	<10	<10	<10	<9.4	<9.7	<9.4	<9.8	<10	<10	<10	<10
Acetophenone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	<10	<10	<10		<10	<10	<9.4	<9.7	<9.4	<9.8	<10	<10	<10	<10
Carbazole	<10	<10	<10	<10	<10	<10	<9.4	<9.7	<9.4	<9.8	<10	<10	<10	<10
2-Chlorophenol	<10	<10	<10	<10	<10	<10	<10	<9.7	<10	<9.8	<10	<10	<10	<10
Dibenzofuran	<10	<10	<10	<10	<10	<10	<9.4	<9.7	<9.4	<9.8	<10	<10	<10	<10
2,4-Dimethylphenol	<10	<10	<10	<10	<10	<10	<9.4	<9.7	<9.4	<9.8	<10	<10	<10	<10
Fluoranthene	<10	<10	<10	<10	<10	<10	<9.4	<9.7	<9.4	<9.8	<10	<10	<10	<10
Fluorene	<10	<10	<10	<10	<10	<10	<9.4	<9.7	<9.4	<9.8	<10	<10	<10	<10
2-Methylnaphthalene	<10	<10	<10	<10	<10	<10	<9.4	<9.7	<9.4	<9.8	<10	<10	<10	<10
2-Methylphenol (o-cresol)	<10	<10	<10	<10	<10	<10	<9.4	<9.7	<9.4	<9.8	<10	<10	<10	<10
3,4-Methylphenol (m+p-cresol)	<10	<10	<10	<10	<10	<10	<9.4	<9.7	<9.4	<9.8	<10	<10	<10	<10
4-Methylphenol											<10	<10	<10	<10
Naphthalene	37	30	22	16	33	<10	16	15	15	<9.8	11	<10	<10	<10
Pentachlorophenol	<50	<50	<50	<50	<50	<10	<9.4	<9.7	<48	<49	<50	<50	<50	<50
Phenanthrene	<10	<10	<10	<10	<10	<10	<9.4	<9.7	<9.4	<9.8	<10	<10	<10	<10
Phenol	<10	<10	<10	<10	<10	<10	<9.4	<9.7	<9.4	<9.8	<10	<10	<10	<10
2,3,4,6-Tetrachlorophenol	<10	<10	<10	<10	<10	<10	<9.4	<9.7	<9.4	<9.8	<10	<10	<10	<10
2,4,6-Trichlorophenol							<9.4	<9.7	<9.4	<9.8	<10	<10	<10	<10
Total SVOCs	37	30	22	16	33	ND	16	15	15	ND	11	ND	ND	ND

NOTES:

All constituents levels are shown in micrograms per liter (ug/l).

D = Diluted sample

ND = Not Detected **NA = Not Analyzed**

NR = Not Reported

All data prior to 2017 was collected by previous consultants. Envirorisk cannot guarantee the validity of the data.

When transcribing data collected by previous consultants, LT (Less Than) was rewritten as <.

Wells MW-1, MW-1A, and AB5 were not sampled and are not included on this table.

Only detected constituents are listed on table. Samples were analyzed for the site specific list of SVOCs.

Acetophenone was added to the Permit in October 2022.

Table B5. Groundwater Analytical Summary (SVOCs)
Manor Timber Company
Manor, Clinch County, GA
Permit Number: HW-047(D)

Well Number	MW-3					MW-3B							
Screened Interval	32-37'					57-67'							
Sample Date	7/10/12	8/7/14	10/25/17	5/25/19	6/28/22	7/23/09	1/8/10	7/6/10	7/10/12	8/7/14	10/25/17	5/25/19	6/28/22
Test Method	8270D					8270D							
Acenaphthene	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Acenapthylene	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Acetophenone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Carbazole	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
2-Chlorophenol	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Dibenzofuran	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
2,4-Dimethylphenol	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Fluoranthene	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Fluorene	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
2-Methylnaphthalene	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
2-Methylphenol (o-cresol)	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
3,4-Methylphenol (m+p-cresol)	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
4-Methylphenol	<10	<10			<10	<10	<10	<10	<10	<10			<10
Naphthalene	<10	<10	<10	<10	<10	10.8	12.2	<10	<10	<10	<10	<10	<10
Pentachlorophenol	<50	<50	<50	<20	<25	<50	<50	<50	<50	<50	<50	<20	<25
Phenanthrene	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Phenol	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
2,3,4,6-Tetrachlorophenol	<10	<10	<10	<20	<10	<10	<10	<10	<10	<10	<10	<20	<10
2,4,6-Trichlorophenol	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Total SVOCs	ND	ND	ND	ND	ND	10.8	12.2	ND	ND	ND	ND	ND	ND

NOTES:

All constituents levels are shown in micrograms per liter (ug/l).

D = Diluted sample

ND = Not Detected **NA = Not Analyzed**

NR = Not Reported

All data prior to 2017 was collected by previous consultants. Envirorisk cannot guarantee the validity of the data.

When transcribing data collected by previous consultants, LT (Less Than) was rewritten as <.

Wells MW-1, MW-1A, and AB5 were not sampled and are not included on this table.

Only detected constituents are listed on table. Samples were analyzed for the site specific list of SVOCs.

Acetophenone was added to the Permit in October 2022.

Table B5. Groundwater Analytical Summary (SVOCs)
Manor Timber Company
Manor, Clinch County, GA
Permit Number: HW-047(D)

Well Number	MW-4B													
Screened Interval	20-30'													
Sample Date	Jan. 96	Jul. 96	Jan. 97	Jul. 97	Jan. 98	Jul. 98	Jan. 99	Jul. 99	Jan. 00	Jul. 00	Jan. 01	Jul. 01	Jan. 02	Jul. 02
Test Method	8270D													
Acenaphthene	280	200	200	260	170	200	97	95	<50	60	52	62	59	50
Acenapthylene	ND	ND	<100	<200	<10	<200	<10	<40	<50	<10	<50	<50	<50	<40
Acetophenone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	ND	ND	<20	<200	<10	<200	63	54	<10	<10	<50	<50	<50	<40
Carbazole	240	310	190	200	120	<200	80	96	51	57	<50	<50	<50	<40
2-Chlorophenol	ND	ND	<100	<200	<10	<10	<10	<40	<50	<10	<50	<50	<50	<40
Dibenzofuran		ND	NR	<200	100	<200	69	67	<50	48	<50	<50	<50	<40
2,4-Dimethylphenol	ND	ND	<500	<200	<10	<200	11	<40	<50	30	<50	<50	<50	<40
Fluoranthene	ND	ND	<20	<200	<10	<200	<10	<40	<50	<10	<50	<50	<50	<40
Fluorene	ND	ND	NR	NR	97	<200	60	52	<50	38	<50	<50	<50	<40
2-Methylnaphthalene	ND	ND	NR	NR	230	240	120	130	54	82	63	68	65	51
2-Methylphenol (o-cresol)		ND	NR	NR	<10	<200	<10	<40	<50	<10	<50	<50	<50	<40
3,4-Methylphenol (m+p-cresol)					<10	NR	NR	<40	<50	<10	<50	<50	<50	<40
4-Methylphenol														
Naphthalene	2500	2000	1500	2800	2400	1600	<10	1400	470	660	480	510	350	330
Pentachlorophenol	ND	ND	<500	<1000	60	<1000	57	<200	<250	<10	<250	<250	<250	<200
Phenanthrene	ND	ND	<20	<200	<10	<200	63	54	<10	39	<50	<50	<50	<40
Phenol	ND	ND	<100	<200	<10	<10	<10	<40	<50	<10	<50	<50	<50	<50
2,3,4,6-Tetrachlorophenol	ND	ND	<500	<1000	60	<200	45	<40	<50	12	<50	<50	<50	<40
2,4,6-Trichlorophenol														
Total SVOCs	3,020	2,510	1,890	3,260	3,237	2,040	665	1,948	575	1,026	595	640	474	431

NOTES:

All constituents levels are shown in micrograms per liter (ug/l).

D = Diluted sample

ND = Not Detected **NA = Not Analyzed**

NR = Not Reported

All data prior to 2017 was collected by previous consultants. Envirorisk cannot guarantee the validity of the data.

When transcribing data collected by previous consultants, LT (Less Than) was rewritten as <.

Wells MW-1, MW-1A, and AB5 were not sampled and are not included on this table.

Only detected constituents are listed on table. Samples were analyzed for the site specific list of SVOCs.

Acetophenone was added to the Permit in October 2022.

Table B5. Groundwater Analytical Summary (SVOCs)
Manor Timber Company
Manor, Clinch County, GA
Permit Number: HW-047(D)

	MW-4B															
	20-30'															
Sample Date	Jan. 03	Jul. 03	Jan. 04	Jul. 04	Jan. 05	Jul. 06	Jan. 07	Jul. 07	Jan. 08	Jul. 08	Jan. 09	7/23/09	1/8/10	7/7/10	1/17/11	2/12/12
	8270D															
Acenaphthene	<100	<200	100	<100	110	55	47	77	70	69	58.1	97	95.2	119.0	18	115
Acenapthylene	<100	<200	<50	<100	<50	<10	<9.4	<9.7	<48	<19	<10	<20	<10	<20	<10	<10
Acetophenone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	<100	<200	<50	<100	<50	<10	<9.4	<9.7	<48	<19	<10	<20	10.9	<20	<10	14.4
Carbazole	<100	<200	<50	<100	<50	22	38	29	<48	<19	15.1	<20	15.5	<20	<10	19.5
2-Chlorophenol	<100	<200	<50	<100	<50	<10	<9.4	<9.7	<48	<19	<10	<20	<10	<20	<10	<10
Dibenzofuran	<100	<200	62	<100	70	29	28	48	<48	38	35.5	63	56.4	78.1	<10	74.8
2,4-Dimethylphenol	<100	<200	<50	<100	<50	75	160	100	<48	54	37.6	<20	48.1	<20	79	<10
Fluoranthene	<100	<200	<50	<100	<50	20.0	<9.4	<9.7	<48	<19	<10	<20	<10	<20	<10	<10
Fluorene	<100	<200	64	<100	74	34	30	48	<48	44	37.9	65	65.7	81.2	26	73.6
2-Methylnaphthalene	<100	<200	98	<100	100	34	50	81	<48	54	39.0	88	50.7	97.8	347	104
2-Methylphenol (o-cresol)	<100	<200	<50	<100	<50	57	150	71	<48	32	33.4	<20	25.0	<20	107	<10
3,4-Methylphenol (m+p-cresol)	<100	<200	<50	<100	<50	92	170	96	<48	58	<10	<20	<10	<20	<10	<10
4-Methylphenol											53.7	<20	36.4	<20	321	<10
Naphthalene	580	1000	530	500	480	69	390	440D	420	260	37.1	270	49.4	269.0	316	265
Pentachlorophenol	<500	<1000	<250	<500	<250	<50	<47	<49	<240	<94	<50	<100	<50	<100	<50	<50
Phenanthrene	<100	<200	50	<100	67	40	35	45	<48	42	37.6	66	68.0	82.1	<10	78
Phenol	<100	<200	<50	<100	<50	59	110	60	88	34	14.1	<20	<10	<20	84	<10
2,3,4,6-Tetrachlorophenol	<100	<200	<50	<100	<50	<10	14	<9.7	<48	<19	<10	<20	<10	<20	<10	<10
2,4,6-Trichlorophenol							<9.4	<9.7	<48	<19	<10	<20	<10	<20	<10	<10
Total SVOCs	580	1,000	904	500	901	586	1,222	1,095	578	685	399.1	650	521.3	727	1,299	744.3

NOTES:

All constituents levels are shown in micrograms per liter (ug/l).

D = Diluted sample

ND = Not Detected **NA = Not Analyzed**

NR = Not Reported

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When transcribing data collected by previous consultants, LT (Less Than) was rewritten as <.

Wells MW-1, MW-1A, and AB5 were not sampled and are not included on this table.

Only detected constituents are listed on table. Samples were analyzed for the site specific list of SVOCs.

Acetophenone was added to the Permit in October 2022.

Table B5. Groundwater Analytical Summary (SVOCs)
Manor Timber Company
Manor, Clinch County, GA
Permit Number: HW-047(D)

	MW-4B											MW-5			
	20-30'											10-15'			
Sample Date	7/10/12	2/18/13	8/21/13	2/24/14	8/8/14	2/9/15	8/11/15	2/12/16	10/26/17	5/25/19	6/29/22	1/18/10	7/10/12	8/7/14	10/25/17
	8270D											8270D			
Acenaphthene	122	93.7	103.0	102.0	112	144	99	142	66.0	91.4	94.0	<10	<10	<10	<10
Acenapthylene	<20	<10	<10	<10	<20	<10	<10	<20	<10	<10	<10	<10	<10	<10	<10
Acetophenone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	<20	12.6	15.2	15.6	<20	17.1	17	<20	<10	<10	<10	<10	<10	<10	<10
Carbazole	<20	10.3	<10	19.1	<20	20.3	13	<20	<10	11.1	17.0	<10	<10	<10	<10
2-Chlorophenol	<20	<10	<10	<10	<20	<10	<10	<20	<10	<10	<10	<10	<10	<10	<10
Dibenzofuran	75.8	54.8	57.9	51.8	74	86.1	65	92	43.0	20.0	60.0	<10	<10	<10	<10
2,4-Dimethylphenol	<20	28.4	<10	153.0	<20	<10	13.5	<20	<10	<10	<10	<10	<10	<10	<10
Fluoranthene	<20	10.6	10.2	10.3	<20	<10	10.4	<20	<10	<10	<10	<10	<10	<10	<10
Fluorene	81.2	68.7	71.4	69.2	75	103	75.5	102	48.0	43.1	62.0	<10	<10	<10	<10
2-Methylnaphthalene	88	70.3	82.8	63.0	101	85.6	93.9	129	47.0	14.5	74.0	<10	<10	<10	<10
2-Methylphenol (o-cresol)	<20	17.5	<10	33.4	<20	<10	<10	<20	<10	<10	<10	<10	<10	<10	<10
3,4-Methylphenol (m+p-cresol)	<20	<10	<10	<10	<20	<10	<10	<20	<10	<10	<10	<10	<10	<10	<10
4-Methylphenol	<20	17.5	<10	64.5	<20	22.6	17.7	<20			<10	<10	<10	<10	
Naphthalene	199	173.0	187.0	61.3	261	80.8	194.0	280	160	40.9	250	<10	<10	<10	<10
Pentachlorophenol	<100	57.7	82.7	<50	<100	87.3	70.1	<100	<50	60.8	<25	<50	<50	<50	<50
Phenanthrene	108	82.3	<10	72.8	69	88.5	91.1	96.4	57.0	29.6	60.0	<10	<10	<10	<10
Phenol	<20	11.8	<10	<10	<20	14	<10	<20	<10	<10	<10	<10	<10	<10	<10
2,3,4,6-Tetrachlorophenol	<20	<10	<10	<10	<20	<10	<10	<10	<10	<20	<10	<10	<10	<10	<10
2,4,6-Trichlorophenol	<20	<10	<10	<10	<20	<10	<10	<20	<10	<10	<10	<10	<10	<10	<10
Total SVOCs	674	709.2	610.2	716.0	692.6	749	760.7	841	421	311.4	617.0	ND	ND	ND	ND

NOTES:

All constituents levels are shown in micrograms per liter (ug/l).

D = Diluted sample

ND = Not Detected **NA = Not Analyzed**

NR = Not Reported

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When transcribing data collected by previous consultants, LT (Less Than) was rewritten as <.

Wells MW-1, MW-1A, and AB5 were not sampled and are not included on this table.

Only detected constituents are listed on table. Samples were analyzed for the site specific list of SVOCs.

Acetophenone was added to the Permit in October 2022.

Table B5. Groundwater Analytical Summary (SVOCs)
Manor Timber Company
Manor, Clinch County, GA
Permit Number: HW-047(D)

Well Number	MW-5		MW-6											
Screened Interval	10-15'		5-15'											
Sample Date	5/24/19	6/28/22	Jan. 00	Jul. 00	Jan. 01	Jul. 01	Jan. 02	Jul. 02	Jan. 03	Jul. 03	Jan. 04	Jul. 04	Jan. 05	Jul. 06
Test Method	8270D		8270D											
Acenaphthene	<10	<10	18	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Acenapthylene	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Acetophenone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Carbazole	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
2-Chlorophenol	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Dibenzofuran	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
2,4-Dimethylphenol	<10	<10	13	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Fluoranthene	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Fluorene	<10	<10	27	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
2-Methylnaphthalene	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
2-Methylphenol (o-cresol)	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
3,4-Methylphenol (m+p-cresol)	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
4-Methylphenol		<10												
Naphthalene	<10	<10	45	<10	<10	<10	18	<10	<10	<10	<10	<10	<10	<10
Pentachlorophenol	<20	<25	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Phenanthrene	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Phenol	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
2,3,4,6-Tetrachlorophenol	<20	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
2,4,6-Trichlorophenol	<10	<10												
Total SVOCs	ND	ND	103	ND	ND	ND	18	ND	ND	ND	ND	ND	ND	ND

NOTES:

All constituents levels are shown in micrograms per liter (ug/l).

D = Diluted sample

ND = Not Detected **NA = Not Analyzed**

NR = Not Reported

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Wells MW-1, MW-1A, and AB5 were not sampled and are not included on this table.

Only detected constituents are listed on table. Samples were analyzed for the site specific list of SVOCs.

Acetophenone was added to the Permit in October 2022.

Table B5. Groundwater Analytical Summary (SVOCs)
Manor Timber Company
Manor, Clinch County, GA
Permit Number: HW-047(D)

Well Number	MW-6												MW-7	
Screened Interval	5-15'												9-14'	
Sample Date	Jan. 07	Jul. 07	Jan. 08	Jul. 08	7/23/09	1/18/10	1/17/11	7/10/12	8/7/14	10/25/17	5/25/19	6/28/22	7/24/09	7/6/10
Test Method	8270D												8270D	
Acenaphthene	<9.4	<9.4	<9.5	<9.4	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Acenapthylene	<9.4	<9.4	<9.5	<9.4	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Acetophenone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	<9.4	<9.4	<9.5	<9.4	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Carbazole	<9.4	<9.4	<9.5	<9.4	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
2-Chlorophenol	<9.4	<9.4	<9.5	<9.4	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Dibenzofuran	<9.4	<9.4	<9.5	<9.4	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
2,4-Dimethylphenol	<47	<9.4	<9.5	<9.4	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Fluoranthene	<9.4	<9.4	<9.5	<9.4	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Fluorene	<9.4	<9.4	<9.5	<9.4	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
2-Methylnaphthalene	<9.4	<9.4	<9.5	<9.4	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
2-Methylphenol (o-cresol)	<9.4	<9.4	<9.5	<9.4	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
3,4-Methylphenol (m+p-cresol)	<9.4	<9.4	<9.5	<9.4	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
4-Methylphenol					<10	<10	<10	<10	<10			<10	<10	<10
Naphthalene	<9.4	<9.4	<9.5	<9.4	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Pentachlorophenol	<47	<47	<48	<47	<50	<50	<50	<50	<50	<50	<20	<25	<50	<50
Phenanthrene	<9.4	<9.4	<9.5	<9.4	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Phenol	<9.4	<9.4	<9.5	<9.4	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
2,3,4,6-Tetrachlorophenol	<9.4	<9.4	<9.5	<9.4	<10	<10	<10	<10	<10	<10	<20	<10	<10	<10
2,4,6-Trichlorophenol	<9.4	<9.4	<9.5	<9.4	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Total SVOCs	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

NOTES:

All constituents levels are shown in micrograms per liter (ug/l).

D = Diluted sample

ND = Not Detected **NA = Not Analyzed**

NR = Not Reported

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Wells MW-1, MW-1A, and AB5 were not sampled and are not included on this table.

Only detected constituents are listed on table. Samples were analyzed for the site specific list of SVOCs.

Acetophenone was added to the Permit in October 2022.

Table B5. Groundwater Analytical Summary (SVOCs)
Manor Timber Company
Manor, Clinch County, GA
Permit Number: HW-047(D)

Well Number	MW-7					MW-8						
Screened Interval	9-14'					12-22'						
Sample Date	7/10/12	8/8/14	10/23/17	5/24/19	6/28/22	7/23/09	7/6/10	7/10/12	8/7/14	10/25/17	5/23/19	6/28/22
Test Method	8270D					8270D						
Acenaphthene	<40	<19	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Acenapthylene	<40	<19	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Acetophenone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	<40	<19	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Carbazole	<40	<19	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
2-Chlorophenol	<40	<19	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Dibenzofuran	<40	<19	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
2,4-Dimethylphenol	<40	<19	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Fluoranthene	<40	<19	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Fluorene	<40	<19	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
2-Methylnaphthalene	<40	<19	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
2-Methylphenol (o-cresol)	<40	<19	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
3,4-Methylphenol (m+p-cresol)	<40	<19	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
4-Methylphenol	<40	<19			<10	<10	<10	<10	<10			<10
Naphthalene	<40	<19	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Pentachlorophenol	<200	<95	<50	<20	<25	<50	<50	<50	<50	<50	<20	<25
Phenanthrene	<40	<19	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Phenol	<40	<19	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
2,3,4,6-Tetrachlorophenol	<40	<19	<10	<20	<10	<10	<10	<10	<10	<10	<20	<10
2,4,6-Trichlorophenol	<40	<19	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Total SVOCs	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

NOTES:

All constituents levels are shown in micrograms per liter (ug/l).

D = Diluted sample

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Wells MW-1, MW-1A, and AB5 were not sampled and are not included on this table.

Only detected constituents are listed on table. Samples were analyzed for the site specific list of SVOCs.

Acetophenone was added to the Permit in October 2022.

Table B5. Groundwater Analytical Summary (SVOCs)
Manor Timber Company
Manor, Clinch County, GA
Permit Number: HW-047(D)

Well Number	MW-9													
Screened Interval	8-13'													
Sample Date	7/23/09	7/7/10	2/12/12	7/10/12	2/18/13	8/21/13	2/24/14	8/8/14	2/9/15	8/11/15	2/12/16	10/25/17	5/24/19	6/28/22
Test Method	8270D													
Acenaphthene	<10	<10	<100	<40	<50	<10	<50	<10	<10	<10	<10	<10	<10	<10
Acenapthylene	<10	<10	<100	<40	<50	<10	<50	<10	<10	<10	<10	<10	<10	<10
Acetophenone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	<10	<10	<100	<40	<50	<10	<50	<10	<10	<10	<10	<10	<10	<10
Carbazole	<10	<10	<100	<40	<50	<10	<50	<10	<10	<10	<10	<10	<10	<10
2-Chlorophenol	<10	<10	<100	<40	<50	<10	<50	<10	<10	<10	<10	<10	<10	<10
Dibenzofuran	<10	<10	<100	<40	<50	<10	<50	<10	<10	<10	<10	<10	<10	<10
2,4-Dimethylphenol	<10	<10	<100	<40	<50	<10	<50	<10	<10	<10	<10	<10	<10	<10
Fluoranthene	<10	<10	<100	<40	<50	<10	<50	<10	<10	<10	<10	<10	<10	<10
Fluorene	<10	<10	<100	<40	<50	<10	<50	<10	<10	<10	<10	<10	<10	<10
2-Methylnaphthalene	<10	<10	<100	<40	<50	<10	<50	<10	<10	<10	<10	<10	<10	<10
2-Methylphenol (o-cresol)	<10	<10	<100	<40	<50	<10	<50	<10	<10	<10	<10	<10	<10	<10
3,4-Methylphenol (m+p-cresol)	<10	<10	<100	<40	<50	<10	<50	<10	<10	<10	<10	<10	<10	<10
4-Methylphenol	<10	<10	<100	<40	<50	<10	<50	<10	<10	<10		<10		<10
Naphthalene	<10	<10	<100	<40	<50	<10	<50	<10	<10	<10	<10	<10	<10	<10
Pentachlorophenol	<50	<50	<500	<200	<250	<50	<250	<50	<50	<50	<50	<50	<20	<25
Phenanthrene	<10	<10	<100	<40	<50	<10	<50	<10	<10	<10	<10	<10	<10	<10
Phenol	<10	<10	<100	<40	<50	<10	<50	<10	<10	<10	<10	<10	<10	<10
2,3,4,6-Tetrachlorophenol	<10	<10	<100	<40	<50	<10	<50	<10	<10	<10	<10	<10	<20	<10
2,4,6-Trichlorophenol	<10	<10	<100	<40	<50	<10	<50	<10	<10	<10	<10	<10	<10	<10
Total SVOCs	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

NOTES:

All constituents levels are shown in micrograms per liter (ug/l).

D = Diluted sample

ND = Not Detected **NA = Not Analyzed**

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When transcribing data collected by previous consultants, LT (Less Than) was rewritten as <.

Wells MW-1, MW-1A, and AB5 were not sampled and are not included on this table.

Only detected constituents are listed on table. Samples were analyzed for the site specific list of SVOCs.

Acetophenone was added to the Permit in October 2022.

Table B5. Groundwater Analytical Summary (SVOCs)
Manor Timber Company
Manor, Clinch County, GA
Permit Number: HW-047(D)

Well Number	MW-10							MW-11							
Screened Interval	10-15'							9-14'							
Sample Date	7/23/09	7/7/10	7/10/12	8/7/14	10/25/17	5/24/19	6/28/22	Jan. 96	Jul. 96	Jan. 97	Jul. 97	Jan. 98	Jul. 98	Jan. 99	Jul. 99
Test Method	8270D							8270D							
Acenaphthene	<10	<10	<10	<10	<10	<10	<10	54	65	66	37	46	56	36	72
Acenapthylene	<10	<10	<10	<10	<10	<10	<10	ND	ND	<10	<10	<10	<10	<10	<10
Acetophenone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	<10	<10	<10	<10	<10	<10	<10	ND	ND	<10	<10	70	<10	<10	<10
Carbazole	<10	<10	<10	<10	<10	<10	<10	30	50	62	31	31	37	14	56
2-Chlorophenol	<10	<10	<10	<10	<10	<10	<10	ND	ND	<10	<10	<10	<10	<10	<10
Dibenzofuran	<10	<10	<10	<10	<10	<10	<10		ND	NR	NR	27	34	<10	44
2,4-Dimethylphenol	<10	<10	<10	<10	<10	<10	<10	13	ND	<10	<10	<10	<10	16	14
Fluoranthene	<10	<10	<10	<10	<10	<10	<10	ND	ND	<10	<10	<10	<10	<10	<10
Fluorene	<10	<10	<10	<10	<10	<10	<10	ND	ND	NR	NR	72	100	40	100
2-Methylnaphthalene	<10	<10	<10	<10	<10	<10	<10	ND	ND	NR	NR	40	13	<10	71
2-Methylphenol (o-cresol)	<10	<10	<10	<10	<10	<10	<10		ND	NR	NR	<10	<10	21	<10
3,4-Methylphenol (m+p-cresol)	<10	<10	<10	<10	<10	<10	<10					<10	NR	NR	<10
4-Methylphenol	<10	<10	<10	<10			<10								
Naphthalene	<10	<10	<10	<10	<10	<10	<10	150	200	140	38	110	<10	<10	210
Pentachlorophenol	<50	<50	<50	<50	<50	<20	<25	ND	ND	<50	<50	<50	<50	<50	<50
Phenanthrene	<10	<10	<10	<10	<10	<10	<10	ND	ND	<10	<10	<10	<10	<10	<10
Phenol	<10	<10	<10	<10	<10	<10	<10	ND	ND	<10	<10	<50	<10	<10	<10
2,3,4,6-Tetrachlorophenol	<10	<10	<10	<10	<10	<20	<10	ND	ND	<50	<50	<10	<10	<10	<10
2,4,6-Trichlorophenol	<10	<10	<10	<10	<10	<10	<10								
Total SVOCs	ND	ND	ND	ND	ND	ND	ND	247	315	268	106	396	240	127	567

NOTES:

All constituents levels are shown in micrograms per liter (ug/l).

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Wells MW-1, MW-1A, and AB5 were not sampled and are not included on this table.

Only detected constituents are listed on table. Samples were analyzed for the site specific list of SVOCs.

Acetophenone was added to the Permit in October 2022.

Table B5. Groundwater Analytical Summary (SVOCs)
Manor Timber Company
Manor, Clinch County, GA
Permit Number: HW-047(D)

Well Number	MW-11													
Screened Interval	9-14'													
Sample Date	Jan. 00	Jul. 00	Jan. 01	Jul. 01	Jan. 02	Jul. 02	Jan. 03	Jul. 03	Jan. 04	Jul. 04	Jan. 05	Jul. 06	Jan. 07	Jul. 07
Test Method	8270D													
Acenaphthene	78	<10	<10	<10	12	43	<10	34	18	<10	<10	37	57	30
Acenapthylene	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<9.6	<9.7
Acetophenone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	11	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<9.6	<9.7
Carbazole	62	<10	<10	<10	<10	27	<10	22	10	<10	<10	22	41	18
2-Chlorophenol	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<9.6	<9.7
Dibenzofuran	54	<10	<10	<10	<10	23	<10	18	11	<10	<10	20	32	17
2,4-Dimethylphenol	14	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<9.6	<9.7
Fluoranthene	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<9.6	<9.7
Fluorene	100	<10	<10	<10	14	62	<10	50	32	<10	10	50	84	42
2-Methylnaphthalene	70	<10	<10	<10	<10	35	<10	33	12	<10	<2	31	52	26
2-Methylphenol (o-cresol)	12	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<9.6	<9.7
3,4-Methylphenol (m+p-cresol)	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<9.6	<9.7
4-Methylphenol														
Naphthalene	220	<10	<10	<10	24	110	<10	120	14	<10	<10	81	160	95
Pentachlorophenol	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<48	<49
Phenanthrene	11	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<9.6	<9.7
Phenol	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<9.6	<9.7
2,3,4,6-Tetrachlorophenol	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<9.6	<9.7
2,4,6-Trichlorophenol													<9.6	<9.7
Total SVOCs	632	ND	ND	ND	50	300	ND	277	97	ND	10	241	426	228

NOTES:

All constituents levels are shown in micrograms per liter (ug/l).

D = Diluted sample

ND = Not Detected **NA = Not Analyzed**

NR = Not Reported

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When transcribing data collected by previous consultants, LT (Less Than) was rewritten as <.

Wells MW-1, MW-1A, and AB5 were not sampled and are not included on this table.

Only detected constituents are listed on table. Samples were analyzed for the site specific list of SVOCs.

Acetophenone was added to the Permit in October 2022.

Table B5. Groundwater Analytical Summary (SVOCs)
Manor Timber Company
Manor, Clinch County, GA
Permit Number: HW-047(D)

Well Number	MW-11													
Screened Interval	9-14'													
Sample Date	Jan. 08	Jul. 08	Jan. 09	7/23/09	1/18/10	7/7/10	1/17/11	2/12/12	7/10/12	2/18/13	8/21/13	2/24/14	8/8/14	2/9/15
Test Method	8270D													
Acenaphthene	<9.6	11	<10	<10	39.6	<10	33	<10	<40	28	<10	<10	<10	<10
Acenapthylene	<9.6	<9.4	<10	<10	<10	<10	<10	<10	<40	<10	<10	<10	<10	<10
Acetophenone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	<9.6	<9.4	<10	<10	<10	<10	<10	<10	<40	<10	<10	<10	<10	<10
Carbazole	<9.6	<9.4	<10	<10	24.2	<10	22	<10	<40	15	<10	<10	<10	<10
2-Chlorophenol	<9.6	<9.4	<10	<10	<10	<10	<10	<10	<40	<10	<10	<10	<10	<10
Dibenzofuran	<9.6	<9.4	<10	<10	21.5	<10	15	<10	<40	12	<10	<10	<10	<10
2,4-Dimethylphenol	<9.6	<9.4	<50	<10	<10	<10	<10	<10	<40	<10	<10	<10	<10	<10
Fluoranthene	<9.6	<9.4	<10	<10	<10	<10	<10	<10	<40	<10	<10	<10	<10	<10
Fluorene	<9.6	20	<10	<10	56.5	<10	34	<10	<40	46	<10	<10	<10	21
2-Methylnaphthalene	<9.6	<9.4	<10	<10	35.2	<10	26	<10	<40	26.6	<10	<10	<10	10.80
2-Methylphenol (o-cresol)	<9.6	<9.4	<10	<10	<10	<10	<10	<10	<40	<10	<10	<10	<10	<10
3,4-Methylphenol (m+p-cresol)	<9.6	<9.4	<10	<10	<10	<10	<10	<10	<40	<10	<10	<10	<10	<10
4-Methylphenol			<10	<10	<10	<10	<10	<10	<40	<10	<10	<10	<10	<10
Naphthalene	<9.6	29	<10	<10	105.0	<10	73	<10	<40	104	<10	<10	<10	18.40
Pentachlorophenol	<48	<47	<50	<50	<50	<50	<50	<50	<200	<50	<50	<50	<50	<50
Phenanthrene	<9.6	<9.4	<10	<10	<10	<10	<10	<10	<40	<10	<10	<10	<10	<10
Phenol	<9.6	<9.4	<10	<10	<10	<10	<10	<10	<40	<10	<10	<10	<10	<10
2,3,4,6-Tetrachlorophenol	<9.6	<9.4	<10	<10	<10	<10	<10	<10	<40	<10	<10	<10	<10	<10
2,4,6-Trichlorophenol	<9.6	<9.4	<10	<10	<10	<10	<10	<10	<40	<10	<10	<10	<10	<10
Total SVOCs	ND	60	ND	ND	282.0	ND	202.2	ND	ND	231.6	ND	ND	ND	50.2

NOTES:

All constituents levels are shown in micrograms per liter (ug/l).

D = Diluted sample

ND = Not Detected **NA = Not Analyzed**

NR = Not Reported

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When transcribing data collected by previous consultants, LT (Less Than) was rewritten as <.

Wells MW-1, MW-1A, and AB5 were not sampled and are not included on this table.

Only detected constituents are listed on table. Samples were analyzed for the site specific list of SVOCs.

Acetophenone was added to the Permit in October 2022.

Table B5. Groundwater Analytical Summary (SVOCs)
Manor Timber Company
Manor, Clinch County, GA
Permit Number: HW-047(D)

Well Number	MW-11					MW-12				MW-13				MW-14	
Screened Interval	9-14'					9-14'				9-14'				10-15'	
Sample Date	8/11/15	2/12/16	10/25/17	5/24/19	6/29/22	7/23/09	7/6/10	10/23/17	5/23/19	7/23/09	7/7/10	10/23/17	5/24/19	7/23/09	7/6/10
Test Method	8270D					8270D				8270D				8270D	
Acenaphthene	19	<10	<10	20.4	21.0	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Acenapthylene	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Acetophenone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Carbazole	17	<10	<10	12.4	14.0	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
2-Chlorophenol	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Dibenzofuran	<10	<10	<10	<10	10.0	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
2,4-Dimethylphenol	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Fluoranthene	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Fluorene	31.4	17.6	<10	26.2	29.0	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
2-Methylnaphthalene	18	<10	<10	11.4	14.0	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
2-Methylphenol (o-cresol)	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
3,4-Methylphenol (m+p-cresol)	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
4-Methylphenol	<10	<10			<10	<10	<10			<10	<10			<10	<10
Naphthalene	71.4	18.4	<10	43.5	49.0	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Pentachlorophenol	<50	<50	<50	<20	<25	<50	<50	<50	<20	<50	<50	<50	<20	<50	<50
Phenanthrene	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Phenol	<10	<10	<10	<10	<10	<10	<10	<10	<10 M1	<10	<10	<10	<10	<10	<10
2,3,4,6-Tetrachlorophenol	<10	<10	<10	<20	<10	<10	<10	<10	<20	<10	<10	<10	<20	<10	<10
2,4,6-Trichlorophenol	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Total SVOCs	156.8	36.0	ND	113.9	137.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

NOTES:

All constituents levels are shown in micrograms per liter (ug/l).

D = Diluted sample

ND = Not Detected **M1 = Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.**

NR = Not Reported

All data prior to 2017 was collected by previous consultants. Envirorisk cannot guarantee the validity of the data.

When transcribing data collected by previous consultants, LT (Less Than) was rewritten as <.

Wells MW-1, MW-1A, and AB5 were not sampled and are not included on this table.

Only detected constituents are listed on table. Samples were analyzed for the site specific list of SVOCs.

Acetophenone was added to the Permit in October 2022.

Table B5. Groundwater Analytical Summary (SVOCs)
Manor Timber Company
Manor, Clinch County, GA
Permit Number: HW-047(D)

Well Number	MW-14		MW-15												
Screened Interval	10-15'		7-9'												
Sample Date	10/24/17	5/24/19	Jan. 96	Jul. 96	Jan. 97	Jul. 97	Jan. 98	Jul. 98	Jan. 99	Jul .99	Jan. 00	Jul. 00	Jan. 01	Jul. 01	Jan. 02
Test Method	8270D		8270D												
Acenaphthene	<10	<10	ND	58	18	72	31	34	66	18	31	<10	<10	46	60
Acenapthylene	<10	<10	ND	ND	<10	<50	<10	<10	<10	<10	<10	<10	<10	<10	<10
Acetophenone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	<10	<10	ND	ND	<10	<50	<10	<10	<10	<10	<10	<10	<10	<10	<10
Carbazole	<10	<10	ND	59	<10	NR	15	17	50	10	11	<10	<10	<10	18
2-Chlorophenol	<10	<10	ND	ND	<10	<50	<10	<10	<10	<10	<10	<10	<10	<10	<10
Dibenzofuran	<10	<10		ND	NR	<50	10	11	38	<10	<10	<10	<10	14	15
2,4-Dimethylphenol	<10	<10	23	99	58	130	44	28	<10	13	70	<10	<10	12	27
Fluoranthene	<10	<10	ND	ND	<10	<50	<50	<10	<50	<10	<10	<10	<10	<10	<10
Fluorene	<10	<10	ND	ND	NR	200	61	72	100	21	30	<10	<10	60	52
2-Methylnaphthalene	<10	<10	ND	ND	NR	<50	13	11	57	<10	<10	<10	<10	17	14
2-Methylphenol (o-cresol)	<10	<10		ND	NR	90	24	30	<10	<10	34	<10	<10	<10	14
3,4-Methylphenol (m+p-cresol)	<10	<10					<10	NR	NR	<10	<10	<10	<10	<10	<10
4-Methylphenol															
Naphthalene	<10	<10	ND	170	<10	290	68	45	140	41	25	<10	<10	94	74
Pentachlorophenol	<50	<20	ND	ND	<50	<250	<50	<50	<50	<50	<50	<50	<50	<50	<50
Phenanthrene	<10	<10	ND	ND	<10	<50	<10	<10	<10	<10	<10	<10	<10	<10	<10
Phenol	<10	<10	35	ND	16	<50	<10	<10	<10	<10	<10	<10	<10	<10	<10
2,3,4,6-Tetrachlorophenol	<10	<20	ND	ND	<50	<50	<50	<10	<10	<10	<10	<10	<10	<10	<10
2,4,6-Trichlorophenol	<10	<10													
Total SVOCs	ND	ND	58	386	92	782	266	248	451	103	201	ND	ND	243	274

NOTES:

All constituents levels are shown in micrograms per liter (ug/l).

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Wells MW-1, MW-1A, and AB5 were not sampled and are not included on this table.

Only detected constituents are listed on table. Samples were analyzed for the site specific list of SVOCs.

Acetophenone was added to the Permit in October 2022.

Table B5. Groundwater Analytical Summary (SVOCs)
Manor Timber Company
Manor, Clinch County, GA
Permit Number: HW-047(D)

Well Number	MW-15														
Screened Interval	7-9'														
Sample Date	Jul. 02	Jan. 03	Jul. 03	Jan. 04	Jul. 04	Jul. 04	Jan. 05	Jul. 06	Jan. 07	Jul. 07	Jan. 08	Jul. 08	Jan. 09	7/23/09	1/18/10
Test Method	8270D														
Acenaphthene	49	<10	56	32	30	30	16	79	13	36	<9.4	79	11.4	55.6	<10
Acenapthylene	<10	<10	<10	<10	<10	<10	<10	<10	<9.4	<9.4	<9.4	<9.4	<10	<10	<10
Acetophenone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	<10	<10	<10	<10	<10	<10	<10	<10	<9.4	<9.4	<9.4	<9.4	<10	<10	<10
Carbazole	20	<10	<10	<10	<10	<10	<10	19	<9.4	NR	<9.4	18	<10	12.2	<10
2-Chlorophenol	<10	<10	<10	<10	<10	<10	<10	<10	<9.4	<9.4	<9.4	<9.4	<10	<10	<10
Dibenzofuran	12	<10	11	<10	<10	<10	<10	11	<9.4	<9.4	<9.4	13	<10	<10	<10
2,4-Dimethylphenol	17	<10	20	17	<10	<10	<10	<10	<9.4	<9.4	<9.4	14	<50	<10	<50
Fluoranthene	<10	<10	<10	<10	<10	<10	<10	<10	<9.4	<9.4	<9.4	<9.4	<10	<10	<10
Fluorene	48	<10	51	28	33	33	11	51	10	31	<9.4	59	<10	36	<10
2-Methylnaphthalene	15	<10	13	<10	<10	<10	<10	<10	<9.4	<9.4	<9.4	12	<10	10.8	<10
2-Methylphenol (o-cresol)	<10	<10	<10	<10	<10	<10	<10	<10	<9.4	<9.4	<9.4	<9.4	<10	<10	<10
3,4-Methylphenol (m+p-cresol)	<10	<10	<10	<10	<10	<10	<10		<9.4	<9.4	<9.4	<9.4	<10	<10	<10
4-Methylphenol													<10	<10	<10
Naphthalene	100	<10	70	32	<10	<10	24	<10	27	38	<9.4	83	<10	63.6	<10
Pentachlorophenol	<50	<50	<50	<50	<50	<50	<50	<50	<47	<9.4	<47	<47	<50	<50	<50
Phenanthrene	<10	<10	<10	<10	<10	<10	<10	<10	<9.4	<9.4	<9.4	<9.4	<10	<10	<10
Phenol	<10	<10	<10	<10	<10	<10	<10	<10	<9.4	<9.4	<9.4	<9.4	<10	<10	<10
2,3,4,6-Tetrachlorophenol	<10	<10	<10	<10	<10	<10	<10	<10	<9.4	<9.4	<9.4	<9.4	<10	<10	<10
2,4,6-Trichlorophenol									<9.4	<9.4	<9.4	<9.4	<10	<10	<10
Total SVOCs	261	ND	221	109	63	63	51	160	50	105	ND	278	11.4	178.2	ND

NOTES:

All constituents levels are shown in micrograms per liter (ug/l).

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ND = Not Detected

NR = Not Reported

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When transcribing data collected by previous consultants, LT (Less Than) was rewritten as <.

Wells MW-1, MW-1A, and AB5 were not sampled and are not included on this table.

Only detected constituents are listed on table. Samples were analyzed for the site specific list of SVOCs.

Acetophenone was added to the Permit in October 2022.

Table B5. Groundwater Analytical Summary (SVOCs)
Manor Timber Company
Manor, Clinch County, GA
Permit Number: HW-047(D)

Well Number	MW-15							MW-16								
Screened Interval	7-9'							9-14'								
Sample Date	7/7/10	1/17/11	7/10/12	8/8/14	10/25/17	5/25/19	6/29/22	Jan. 96	Jul. 96	Jan. 97	Jul. 97	Jan. 98	Jul. 98	Jan. 99	Jul .99
Test Method	8270D							8270D							
Acenaphthene	<10	<10	29.5	32.3	10.0	39.0	18.0	ND	ND	<200	<200	<200	<100	<40	<50
Acenapthylene	<10	<10	<10	<20	<10	<10	<10	ND	ND	<200	<200	<200	<100	<40	<50
Acetophenone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	<10	<10	<10	<20	<10	<10	<10	ND	ND	<200	<200	<200	<100	<40	<50
Carbazole	<10	<10	<10	<20	<10		<10	ND	ND	<200	<200	<200	<100	<40	<50
2-Chlorophenol	<10	<10	<10	<20	<10	<10	<10	ND	ND	<200	<200	<200	<100	<40	<50
Dibenzofuran	<10	<10	<10	<20	<10	<10	<10		ND	NR	NR	<200	<100	<40	<50
2,4-Dimethylphenol	<50	<50	<50	<20	<10	<10	<10	ND	220	340	420	290	<100	<40	290
Fluoranthene	<10	<10	<10	<20	<10	<10	<10	ND	ND	<200	<200	<200	<100	<40	<50
Fluorene	<10	<10	18	<20	<10	22.0	11.0	ND	140	NR	NR	<200	<100	<40	80
2-Methylnaphthalene	<10	<10	<10	<20	<10	<10	<10	ND	ND	NR	NR	<200	<100	<40	52
2-Methylphenol (o-cresol)	<10	<10	<10	<20	<10	<10	<10		ND	NR	NR	570	140	<40	340
3,4-Methylphenol (m+p-cresol)	<10	<10	<10	<20	<10	<10	<10					2600	NR	65	1500
4-Methylphenol	<10	<10	<10	<20			<10								
Naphthalene	<10	<10	13	<20	<10	31.0	13.0	810	44	760	840	970	220	130	550
Pentachlorophenol	<50	<50	<50	<100	<50	<20	<25	ND	ND	<1000	<1000	<1000	<500	<200	<250
Phenanthrene	<10	<10	<10	<20	<10	<10	<10	ND	ND	<200	<200	<200	<100	<40	<50
Phenol	<10	<10	<10	<20	<10	<10	<10	2000	1500	2200	2600	2100	720	<40	<50
2,3,4,6-Tetrachlorophenol	<10	<10	<10	<20	<10	<20	<10	ND	ND	<1000	<1000	<1000	<100	<40	<50
2,4,6-Trichlorophenol	<10	<10	<10	<20	<10	<10	<10								
Total SVOCs	ND	ND	60.1	32.3	10.0	92.0	42.0	2810	1904	3300	3860	6530	1080	195	2812

NOTES:

All constituents levels are shown in micrograms per liter (ug/l).

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ND = Not Detected

NR = Not Reported

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When transcribing data collected by previous consultants, LT (Less Than) was rewritten as <.

Wells MW-1, MW-1A, and AB5 were not sampled and are not included on this table.

Only detected constituents are listed on table. Samples were analyzed for the site specific list of SVOCs.

Acetophenone was added to the Permit in October 2022.

Table B5. Groundwater Analytical Summary (SVOCs)
Manor Timber Company
Manor, Clinch County, GA
Permit Number: HW-047(D)

Well Number	MW-16													
Screened Interval	9-14'													
Sample Date	Jan. 00	Jul. 00	Jan. 01	Jul. 01	Jan. 02	Jul. 02	Jan. 03	Jul. 03	Jan. 04	Jul. 04	Jan. 05	Jul. 06	Jan. 07	Jul. 07
Test Method	8270D													
Acenaphthene	<100	<20	<50	<200	<200	<200	<200	<200	<100	<100	<100	<94	58	33
Acenapthylene	<100	<20	<50	<200	<200	<200	<200	<200	<100	<100	<100	<94	<9.7	<9.8
Acetophenone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	<100	<20	<50	<200	<200	<200	<200	<200	<100	<100	<100	<94	<9.7	<9.8
Carbazole	<100	<20	<50	<200	<200	<200	<200	<200	<100	<100	<100	<94	<9.7	<9.8
2-Chlorophenol	<100	<20	<50	<200	<200	<200	<200	<200	<100	<100	<100	<94	<9.7	<9.8
Dibenzofuran	<100	<20	<50	<200	<200	<200	<200	<200	<100	<100	<100	<94	<9.7	<9.8
2,4-Dimethylphenol	490	78	330	300	630	380	260	530	340	240	360	200	180	170D
Fluoranthene	<100	<20	<50	<200	<200	<200	<200	<200	<100	<100	<100	<94	<9.7	<9.8
Fluorene	<100	32	68	<200	<200	<200	<200	<200	100	<100	110	<94	96	74
2-Methylnaphthalene	<100	<20	<50	<200	<200	<200	<200	<200	<100	<100	<100	<94	36	36
2-Methylphenol (o-cresol)	2900	88	72	320	<200	400	270	560	340	260	340	200	170D	170D
3,4-Methylphenol (m+p-cresol)	<100	380	1500	1500	2800	1900	1200	2400	1500	<100	1500	810.0	650D	680D
4-Methylphenol														
Naphthalene	610	150	510	520	950	650	480	990	610	460	680	400	360D	340D
Pentachlorophenol	<500	<20	<50	<1000	<1000	<1000	<1000	<1000	<500	<500	<500	<470	<49	<49
Phenanthrene	<100	<20	<50	<200	<200	<200	<200	<200	<100	<100	<100	<94	<9.7	<9.8
Phenol	2300	310	1100	1300	2700	1600	900	2400	1100	970	1200	560	<9.7	470D
2,3,4,6-Tetrachlorophenol	<100	<20	<50	<200	<200	<200	<200	<200	<100	<100	<100	<94	<9.7	<9.8
2,4,6-Trichlorophenol													<9.7	<9.8
Total SVOCs	6300	1038	3580	3940	7080	4930	3110	6880	3990	1930	4190	2170	1550	1973

NOTES:

All constituents levels are shown in micrograms per liter (ug/l).

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Wells MW-1, MW-1A, and AB5 were not sampled and are not included on this table.

Only detected constituents are listed on table. Samples were analyzed for the site specific list of SVOCs.

Acetophenone was added to the Permit in October 2022.

Table B5. Groundwater Analytical Summary (SVOCs)
Manor Timber Company
Manor, Clinch County, GA
Permit Number: HW-047(D)

Well Number	MW-16												
Screened Interval	9-14'												
Sample Date	Jan. 08	Jul. 08	Jan. 09	7/23/09	1/18/10	1/17/11	7/10/12	8/8/14	10/26/17	5/25/19	5/25/2019 (DUP-1)	6/29/22	6/29/2022 (DUP-1)
Test Method	8270D												
Acenaphthene	<48	<94	67.6	<50	<20	<10	61	55.2	49.0	61.4	61.0	100	94.0
Acenapthylene	<48	<94	<50	<50	<20	<10	<10	<50	<10	<10	<10	<10	<10
Acetophenone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	<48	<94	<50	<50	<20	<10	<10	<50	<10	<10	<10	<10	<10
Carbazole	<48	<94	<50	<50	<20	<10	<10	<50	<10	<10	<10	34.0	34.0
2-Chlorophenol	<48	<94	<50	<50	<20	<10	<10	<50	<10	<10	<10	<10	<10
Dibenzofuran	<48	<94	<50	<50	<20	<10	4.9	<50	<10	<10	<10	40.0	37.0
2,4-Dimethylphenol	170	270	67.5	106	116	48.3	83	126	80.0	77.7	81.8	<10	<10
Fluoranthene	<48	<94	<50	<50	<20	<10	<10	<50	<10	<10	<10	<10	<10
Fluorene	77	120	<50	64.9	<20	76.4	81	92.5	62.0	72.5	72.2	120	110
2-Methylnaphthalene	<48	<94	77.4	<50	31.2	23.9	27	<50	25.0	24.0	25.3	110	100
2-Methylphenol (o-cresol)	190	280	94.6	119	73.9	62.4	72	<50	73.0	58.0	62.9	100	100
3,4-Methylphenol (m+p-cresol)	760.0	1000	<50	<50	94.2	<10	260.0	<50	350	278	266	540	450
4-Methylphenol			390	432.0	<20	276		412				540	450
Naphthalene	370	560	239	209	275	228	210	337	300	270	272	890	740
Pentachlorophenol	<48	<94	<250	<250	<100	<10	<50	<250	<50	<20	<20	<25	<25
Phenanthrene	<48	<94	<50	<50	<20	<10	<10	<50	<10	<10	<10	<10	<10
Phenol	480	680	141	169	108	72	86	146	34.0	34.3	35.7	<10	150
2,3,4,6-Tetrachlorophenol	<48	<94	<50	<50	<20	<10	<10	<50	<10	<20	<20	<10	<10
2,4,6-Trichlorophenol	<48	<94	<50	<50	<20	<10	<10	<50	<10	<10	<10	<10	<10
Total SVOCs	2047	2910	1077.1	1100	698.3	787.0	737.9	1168.7	973	875.9	876.9	2,474.0	1,815.0

NOTES:

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Wells MW-1, MW-1A, and AB5 were not sampled and are not included on this table.

Only detected constituents are listed on table. Samples were analyzed for the site specific list of SVOCs.

Acetophenone was added to the Permit in October 2022.

Table B5. Groundwater Analytical Summary (SVOCs)
Manor Timber Company
Manor, Clinch County, GA
Permit Number: HW-047(D)

Well Number	MW-17													
Screened Interval	12-17'													
Sample Date	Jan. 96	Jul. 96	Jan. 97	Jul. 97	Jan. 98	Jul. 98	Jan. 99	Jul .99	Jan. 00	Jul. 00	Jan. 01	Jul. 01	Jan. 02	Jul. 02
Test Method	8270D													
Acenaphthene	540	ND	550	460	<500	<1000	<500	450	240	230	<250	<200	88	120
Acenapthylene	ND	ND	<500	<400	<500	<1000	<500	<200	<100	<200	<250	<200	<50	<100
Acetophenone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	ND	ND	<500	<400	<500	<1000	<500	<200	<100	<200	<250	<200	<50	<100
Carbazole	530	ND	<500	<400	<500	<1000	<500	370	220	<200	<250	<200	<68	<100
2-Chlorophenol	ND	ND	<500	<400	<500	<1000	<500	1400	<100	<200	<250	<200	<200	<100
Dibenzofuran		ND	NR	NR	<500	<1000	<500	270	140	<200	<250	<200	54	<100
2,4-Dimethylphenol	920	790	600	600	570	<1000	<500	900	570	590	570	340	200	230
Fluoranthene	ND	ND	<500	<400	<400	<1000	<500	<200	<100	<200	<250	<200	<50	<100
Fluorene	ND	ND	NR	NR	<500	<1000	<500	290	160	<200	<250	<200	66	<100
2-Methylnaphthalene	ND	ND	NR	NR	590	<1000	<500	680	350	340	390	210	120	150
2-Methylphenol (o-cresol)		ND	NR	NR	<500	<1000	<500	660	1600	410	340	230	140	170
3,4-Methylphenol (m+p-cresol)					890	NR	1600	2000	<100	1200	1000	690	360	500
4-Methylphenol														
Naphthalene	5600	4000	<2500	4800	4400	6400	3600	4500	2200	2900	3300	1900	940	1400
Pentachlorophenol	ND	ND	<2500	<2000	<2500	<5000	<2500	<1000	<500	<1000	<1200	<1000	<250	<500
Phenanthrene	ND	ND	<500	<400	<500	<1000	<500	<200	<100	<200	<250	<200	<50	<100
Phenol	1400	1200	1100	1000	740	1400	1000	1400	850	860	680	530	250	330
2,3,4,6-Tetrachlorophenol	ND	ND	<2500	<2000	<2500	<1000	<500	<200	<100	<200	<250	<200	<50	<100
2,4,6-Trichlorophenol														
Total SVOCs	8990	5990	2250	6860	7190	7800	6200	12920	6330	6530	6280	3900	2218	2900

NOTES:

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Wells MW-1, MW-1A, and AB5 were not sampled and are not included on this table.

Only detected constituents are listed on table. Samples were analyzed for the site specific list of SVOCs.

Acetophenone was added to the Permit in October 2022.

Table B5. Groundwater Analytical Summary (SVOCs)
Manor Timber Company
Manor, Clinch County, GA
Permit Number: HW-047(D)

Well Number	MW-17													
Screened Interval	12-17'													
Sample Date	Jan. 03	Jul. 03	Jan. 04	Jul. 04	Jan. 05	Jul. 06	Jan. 07	Jul. 07	Jan. 08	Jul. 08	Jan. 09	Jul. 09	1/18/10	7/7/10
Test Method	8270D													
Acenaphthene	120	<100	<100	<100	110	82	<190	170	<190	<190	165	68	139	110
Acenapthylene	<100	<100	<100	<100	<100	<10	<9.4	<9.4	<190	<190	<100	<10	128	<100
Acetophenone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	<100	<100	<100	<100	<100	<10	<9.4	<9.4	<190	<190	<100	2.1	<100	<100
Carbazole	<100	<100	<100	<100	<100	62	140	120	<190	<190	<100	<10	<100	<100
2-Chlorophenol	<100	<100	<100	<100	<100	<10	<9.4	<9.4	<190	<190	<100	<10	<100	<100
Dibenzofuran	<100	<100	<100	<100	<100	45	89	84	<190	<190	<100	33	<100	<100
2,4-Dimethylphenol	240	130	190	120	240	180	210D	360D	310	320	160	140	<100	165
Fluoranthene	<100	<100	<100	<100	<100	<10	<9.4	<9.4	<190	<190	<100	<10	<100	<100
Fluorene	<100	<100	<100	<100	<100	79	150	150	<190	<190	138	67	<100	<100
2-Methylnaphthalene	160	<100	130	<100	150	110	<9.4	240D	270	190	204	91	151	<100
2-Methylphenol (o-cresol)	170	<100	120	<100	160	120	<190	210D	220	210	114	76	<100	<100
3,4-Methylphenol (m+p-cresol)	470	260	340	<100	430	310	340D	500D	490	510	<100	170	<100	<100
4-Methylphenol											238		146	196
Naphthalene	1500	700	1000	660	1300	840	1500D	2300D	2200	1500	1660	1000	1090	1250
Pentachlorophenol	<500	<500	<500	<500	<500	<50	<47	<47	<970	<940	<500	<50	<500	152
Phenanthrene	<100	<100	<100	<100	<100	23	43	35	<190	<190	<100	20	<100	<100
Phenol	310	180	220	140	270	180	<190	300D	260	260	<100	38	<100	<100
2,3,4,6-Tetrachlorophenol	<100	<100	<100	<100	<100	<10	<9.4	<9.4	<190	<190	<100	<10	<100	<100
2,4,6-Trichlorophenol							<9.4	<9.4	<190	<190	<100	<10	<100	<100
Total SVOCs	2970	1270	2000	920	2660	2031	2472	4469	3750	2990	2679	1705.1	1654	1873

NOTES:

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Wells MW-1, MW-1A, and AB5 were not sampled and are not included on this table.

Only detected constituents are listed on table. Samples were analyzed for the site specific list of SVOCs.

Acetophenone was added to the Permit in October 2022.

Table B5. Groundwater Analytical Summary (SVOCs)
Manor Timber Company
Manor, Clinch County, GA
Permit Number: HW-047(D)

Well Number	MW-17							MW-18						
Screened Interval	12-17'							12-17'						
Sample Date	1/17/11	7/10/12	8/8/14	10/26/17	5/25/19	6/29/22	10/18/22	Jan. 97	Jul. 97	Jan. 98	Jul. 98	Jan. 99	Jul. 99	Jan. 00
Test Method	8270D							8270D						
Acenaphthene	127	150	260	260	279	400	NA	<10	<10	<10	<10	<10	<10	<50
Acenapthylene	<10	<100	<10	<10	<10	11.0	NA	<10	<10	<10	<10	<10	<10	<50
Acetophenone	NA	NA	NA	NA	NA	NA	82.0	NA	NA	NA	NA	NA	NA	NA
Anthracene	13.1	<100	4.3	<10	<10	<10	NA	<10	<10	<10	<10	<10	<10	<50
Carbazole	77	119	<10	190	138	400	NA	<10	<10	<10	<10	<10	<10	<50
2-Chlorophenol	<10	<100	<10	<10	<10	<10	NA	<10	<10	<10	<10	<10	<10	<50
Dibenzofuran	46.2	<100	120	120	106	240	NA	NR	NR	27	<10	<10	<10	<50
2,4-Dimethylphenol	98.2	229	170	240	142	300	NA	50	48	39	64	50	73	100
Fluoranthene	<10	<100	<10	<10	<10	<10	NA	<10	<10	<10	<10	<10	<10	<50
Fluorene	120	143	180	190	156	240	NA	NR	NR	<10	16	<10	17	<50
2-Methylnaphthalene	121	168	400	320	255	530	NA	NR	NR	<10	<10	<10	<10	<50
2-Methylphenol (o-cresol)	60.1	138	160	93	47.2	160	NA	NR	NR	<10	30	21	63	56
3,4-Methylphenol (m+p-cresol)	<10	<100	390	240	114	450	NA			66	NR	61	42	<50
4-Methylphenol	116	243				450	NA							
Naphthalene	886	1470	3200	2400	1,620	5,200	NA	150	140	68	49	110	12	330
Pentachlorophenol	<50	<500	<50	<50	<20	240	NA	<50	<50	<50	<50	<10	<10	<250
Phenanthrene	13.3	<100	36	54	82.3	140	NA	<10	<10	<10	<10	<10	<10	<50
Phenol	27.8	<100	170	100	54.9	140	NA	35	<10	46	17	35	<10	<50
2,3,4,6-Tetrachlorophenol	<10	<100	<10	<10	<20	110	NA	<50	<50	<50	<10	<10	<10	<50
2,4,6-Trichlorophenol	<10	<100	3	<10	<10	<10	NA							
Total SVOCs	1705.7	2660	5093.7	4,207	2994.4	9011.0	82.0	235	188	246	176	277	207	486

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Only detected constituents are listed on table. Samples were analyzed for the site specific list of SVOCs.

Acetophenone was added to the Permit in October 2022.

Table B5. Groundwater Analytical Summary (SVOCs)
Manor Timber Company
Manor, Clinch County, GA
Permit Number: HW-047(D)

Well Number	MW-18														
Screened Interval	12-17'														
Sample Date	Jul. 00	Jan. 01	Jul. 01	Jan. 02	Jul. 02	Jan. 03	Jul. 03	Jan. 04	Jul. 04	Jan. 05	Jul. 06	Jan. 07	Jul. 07	Jan. 08	Jul. 08
Test Method	8270D														
Acenaphthene	<10	12	<50	<40	<50	<100	<100	<40	<50	<200	20	20	25	<47	<47
Acenapthylene	<10	<10	<50	<40	<50	<100	<100	<40	<50	<200	<10	<9.4	<10	<47	<47
Acetophenone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	<10	<10	<50	<40	<50	<100	<100	<40	<50	<200	<10	<19	<10	<47	<47
Carbazole	<10	<10	<50	<40	<50	<100	<100	<40	<50	<200	<10	<9.4	<10	<47	<47
2-Chlorophenol	<10	<10	<50	<40	<50	<100	<100	<40	<50	<200	<10	<9.4	<10	<47	<47
Dibenzofuran	<10	<10	<50	<40	<50	<100	<100	<40	<50	<200	<10	<9.4	<10	<47	<47
2,4-Dimethylphenol	<50	140	210	170	190	180	250	240	160	<200	150	96	190D	75	180
Fluoranthene	<10	<10	<50	<40	<50	<100	<100	<40	<50	<200	<10	31D	<10	<47	<47
Fluorene	<10	26	<50	<40	<50	<100	<100	46	<50	<200	33	33	42	<47	<47
2-Methylnaphthalene	<10	22	<50	<40	<50	<100	<100	46	<50	<200	33	30	50	<47	<47
2-Methylphenol (o-cresol)	<10	33	91	83	150	120	<100	120	120	<200	75	51	150	67	110
3,4-Methylphenol (m+p-cresol)	<10	42	140	97	420	260	230	290	<50	<200	120	69	190D	81	70
4-Methylphenol															
Naphthalene	<10	290	300	430	500	460	680	460	430	410	450	260D	580D	370	540
Pentachlorophenol	<10	<50	<250	<200	<250	<500	<500	<200	<250	<1000	<50	<47	<50	<240	<240
Phenanthrene	<10	<10	<50	<40	<50	<100	<100	<40	<50	<200	<10	<9.4	<10	<47	<47
Phenol	<10	<10	<50	<40	100	100	100	170	<50	<200	49	10	<10	<47	<47
2,3,4,6-Tetrachlorophenol	<10	<10	<50	<40	<50	<100	<100	<40	<50	<200	<10	<9.4	<10	<47	<47
2,4,6-Trichlorophenol												<9.4	<10	<47	<47
Total SVOCs	ND	565	741	780	1360	1120	1260	1372	710	410	930	599.5	1227	593	900

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Wells MW-1, MW-1A, and AB5 were not sampled and are not included on this table.

Only detected constituents are listed on table. Samples were analyzed for the site specific list of SVOCs.

Acetophenone was added to the Permit in October 2022.

Table B5. Groundwater Analytical Summary (SVOCs)
Manor Timber Company
Manor, Clinch County, GA
Permit Number: HW-047(D)

Well Number	MW-18													
Screened Interval	12-17'													
Sample Date	Jan. 09	7/23/09	1/18/10	7/7/10	1/17/11	2/12/12	7/10/12	2/18/13	8/21/13	2/24/14	8/8/14	2/9/15	8/11/16	2/12/16
Test Method	8270D													
Acenaphthene	<10	<20	<20	<10	80.1	15.9	<20	26.9	29.3	<40	<10	<40	24	20.6
Acenapthylene	<10	<20	<20	<10	<10	<10	<20	<10	<10	<40	<10	<40	<10	<20
Acetophenone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	<10	<20	<20	<10	<10	<10	<20	<10	<10	<40	<10	<40	<10	<20
Carbazole	<10	<20	<20	<10	16.5	<10	<20	<10	<10	<40	<10	<40	<10	<20
2-Chlorophenol	<10	<20	<20	<10	<10	<10	<20	<10	<10	<40	<10	<40	<10	<20
Dibenzofuran	<10	<20	<20	<10	39.2	<10	<20	<10	<10	<40	<10	<40	<10	<20
2,4-Dimethylphenol	<10	<20	53	<10	28.2	69.4	83.4	156	140	280	<10	104	104	41
Fluoranthene	<10	<20	<20	<10	<10	<10	<20	<10	<10	<40	<10	<40	<10	<20
Fluorene	<10	23.2	<20	<10	51.5	21.8	<20	41.8	46.2	<40	<10	<40	39.6	32.9
2-Methylnaphthalene	<10	33.7	20.4	<10	42.6	31	23.3	45.5	52	46.7	<10	45	45.9	35.4
2-Methylphenol (o-cresol)	<10	32	38.5	<10	32.7	86.8	102	143	136	113	<10	103	73	34.9
3,4-Methylphenol (m+p-cresol)	<10	<20	<20	<10	<10	<10	<20	<10	<10	<40	<10	<40	<10	<20
4-Methylphenol	14.6	38.9	131	<10	48.2	236	144	244	299	244	101	336	204	96.9
Naphthalene	106	399	252	152	91.9	351	316	465	551	444	343	441	474	299
Pentachlorophenol	<50	<100	<100	<50	66.9	<50	<100	<50	<50	<200	<50	<200	<50	<100
Phenanthrene	<10	<20	<20	<10	48.9	<10	<20	<10	<10	<40	<10	<40	<10	<20
Phenol	<10	<20	29.4	<10	22.4	48	<20	38.3	28.7	<40	<10	64.2	<10	<20
2,3,4,6-Tetrachlorophenol	<10	<20	<20	<10	<10	<10	<20	<10	<10	<40	<10	<40	<10	<10
2,4,6-Trichlorophenol	<10	<20	<20	<10	<10	<10	<20	<10	<10	<40	<10	<40	<10	<20
Total SVOCs	120.6	526.8	524.3	152	569.1	859.8	668.7	1160.5	1282.2	1127.7	444	1093.2	964.6	560.7

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Acetophenone was added to the Permit in October 2022.

Table B5. Groundwater Analytical Summary (SVOCs)
Manor Timber Company
Manor, Clinch County, GA
Permit Number: HW-047(D)

	MW-18				MW-19								
	12-17'				10-15'								
Sample Date	10/26/17	10/26/2017 (DUP1)	5/25/19	6/29/22	7/23/09	2/12/12	7/10/12	2/18/13	8/21/13	2/24/14	8/8/14	2/9/15	8/11/15
	8270D				8270D								
Acenaphthene	20.0	22.0	23.8	19.0	<10	<10	<10	<10	<10	<10	<10	<10	<10
Acenapthylene	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Acetophenone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Carbazole	<10	<10	10.2	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
2-Chlorophenol	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Dibenzofuran	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
2,4-Dimethylphenol	56.0	64.0	58.0	22.0	<10	<10	<10	<10	<10	<10	<10	<10	<10
Fluoranthene	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Fluorene	29.0	33.0	37.8	26.0	<10	<10	<10	<10	<10	<10	<10	<10	<10
2-Methylnaphthalene	25.0	28.0	28.4	16.0	<10	<10	<10	<10	<10	<10	<10	<10	<10
2-Methylphenol (o-cresol)	52.0	57.0	37.9	15.0	<10	<10	<10	<10	<10	<10	<10	<10	<10
3,4-Methylphenol (m+p-cresol)	52.0	87.0	61.1	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
4-Methylphenol				<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Naphthalene	280	330	230	170	<10	<10	<10	<10	<10	<10	<10	<10	<10
Pentachlorophenol	<50	<50	<20	<25	<50	<50	<50	<50	<50	<50	<50	<50	<50
Phenanthrene	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Phenol	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
2,3,4,6-Tetrachlorophenol	<10	<10	<20	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
2,4,6-Trichlorophenol	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Total SVOCs	514	621	487.2	268.0	ND	ND	ND	ND	ND	ND	ND	ND	ND

NOTES:

All constituents levels are shown in micrograms per liter (ug/l).

D = Diluted sample

ND = Not Detected **NA = Not Analyzed**

NR = Not Reported

All data prior to 2017 was collected by previous consultants. Envirorisk cannot guarantee the validity of the data.

When transcribing data collected by previous consultants, LT (Less Than) was rewritten as <.

Wells MW-1, MW-1A, and AB5 were not sampled and are not included on this table.

Only detected constituents are listed on table. Samples were analyzed for the site specific list of SVOCs.

Acetophenone was added to the Permit in October 2022.

Table B5. Groundwater Analytical Summary (SVOCs)
Manor Timber Company
Manor, Clinch County, GA
Permit Number: HW-047(D)

	MW-19			
	10-15'			
Sample Date	2/12/16	10/23/17	5/25/19	6/28/22
	8270D			
Acenaphthene	<10	<10	<10	<10
Acenapthylene	<10	<10	<10	<10
Acetophenone	NA	NA	NA	NA
Anthracene	<10	<10	<10	<10
Carbazole	<10	<10	<10	<10
2-Chlorophenol	<10	<10	<10	<10
Dibenzofuran	<10	<10	<10	<10
2,4-Dimethylphenol	<10	<10	<10	<10
Fluoranthene	<10	<10	<10	<10
Fluorene	<10	<10	<10	<10
2-Methylnaphthalene	<10	<10	<10	<10
2-Methylphenol (o-cresol)	<10	<10	<10	<10
3,4-Methylphenol (m+p-cresol)	<10	<10	<10	<10
4-Methylphenol	<10			<10
Naphthalene	<10	<10	<10	<10
Pentachlorophenol	<50	<50	<20	<25
Phenanthrene	<10	<10	<10	<10
Phenol	<10	<10	<10	<10
2,3,4,6-Tetrachlorophenol	<10	<10	<20	<10
2,4,6-Trichlorophenol	<10	<10	<10	<10
Total SVOCs	ND	ND	ND	ND

NOTES:

All constituents levels are shown in micrograms per liter (ug/l).

D = Diluted sample

ND = Not Detected **NA = Not Analyzed**

NR = Not Reported

All data prior to 2017 was collected by previous consultants. Envirorisk cannot guarantee the

When transcribing data collected by previous consultants, LT (Less Than) was rewritten as <

Wells MW-1, MW-1A, and AB5 were not sampled and are not included on this table.

Only detected constituents are listed on table. Samples were analyzed for the site specific lis

Acetophenone was added to the Permit in October 2022.

TABLE B6
SUMMARY OF REMEDIATION SYSTEM
MANOR TIMBER COMPANY
February 2006 through July 2006

DAYS	MONTH		RW1R	MW2	MW3	MW4	RW2	SYSTEM*	M1**
31	28-Jan-06	TOTAL PUMPAGE	63040	51860	108360	0	74470	297730	310810
	to	CUMULATIVE							
	27-Feb-06	RATE/GPM	1.41	1.16	2.43	0.00	1.67	6.67	6.96
28	28-Feb-06	TOTAL PUMPAGE	42220	53660	89150	0	50890	235920	239440
	to	CUMULATIVE	105260	105520	197510	0	125360		
	27-Mar-06	RATE/GPM	1.05	1.33	2.21	0.00	1.26	5.85	5.94
28	28-Mar-06	TOTAL PUMPAGE	42130	49780	64510	0	52810	211290	211290
	to	CUMULATIVE	147390	155300	262020	0	178170		
	14-Apr-06	RATE/GPM	1.04	1.23	1.60	0.00	1.31	5.24	5.24
28	25-Apr-06	TOTAL PUMPAGE	40760	48620	62160	0	55680	208790	208790
	to	CUMULATIVE	188150	203920	324180	0	233850		
	22-May-06	RATE/GPM	1.01	1.21	1.54	0.00	1.38	5.18	5.18
28	23-May-06	TOTAL PUMPAGE	43890	56960	31590	0	50370	182810	188760
	to	CUMULATIVE	232040	260880	355770	0	284220		
	17-Jun-06	RATE/GPM	1.09	1.41	0.78	0.00	1.25	4.53	4.68
34	20-Jun-06	TOTAL PUMPAGE	42420	55210	31590	0	48820	178040	189310
	to	CUMULATIVE	274460	316090	387360	0	333040		
	23-Jul-06	RATE/GPM	0.87	1.13	0.65	0.00	1.00	3.64	3.87
177						TOTAL		1314580	1348400
					AVG. PUMPING RATE (GPM)			5.16	5.29

NOTES:
*System - indicates the total pumpage from tabulating the meter readings at each individual well. It varies from the totals derived from the several meters recording total outflow from the filter system.
**M1 indicates the meter that reads outflow at the filter system.

See monthly pumping records contained in Appendix B for actual field data.

Revised 4/23/07

TABLE B6
SUMMARY OF REMEDIATION SYSTEM
MANOR TIMBER COMPANY
August 2005 through January 2006

DAYS	MONTH		RW1R	MW2	MW3	MW4	RW2	SYSTEM*	M1**
35	26-Jul-05	TOTAL PUMPAGE	66460	12220	56070	27160	96370	258280	257250
		CUMULATIVE							
	29-Aug-05	RATE/GPM	1.32	0.24	1.11	0.54	1.91	5.12	5.1
21	30-Aug-05	TOTAL PUMPAGE	27290	29000	33470	16060	49520	155340	159550
		CUMULATIVE	93750	41220	89540	43220	145890		
	19-Sep-05	RATE/GPM	0.90	0.96	1.11	0.53	1.64	5.14	5.25
35	20-Sep-05	TOTAL PUMPAGE	32650	51420	56860	22610	71860	235400	239030
		CUMULATIVE	126400	92640	146400	65830	217750		
	24-Oct-05	RATE/GPM	0.65	1.02	1.13	0.45	1.43	4.67	4.74
28	25-Oct-05	TOTAL PUMPAGE	18190	41560	47490	3950	43170	154360	156880
		CUMULATIVE	144590	134200	193890	69780	260920		
	21-Nov-05	RATE/GPM	0.45	1.03	1.18	0.10	1.07	3.83	3.89
35	22-Nov-05	TOTAL PUMPAGE	48560	57700	81610	0	60000	242510	261920
		CUMULATIVE	193150	191900	275500	69780	320920		
	26-Dec-05	RATE/GPM	0.96	1.14	1.62	0.00	1.19	4.81	5.19
32	27-Dec-05	TOTAL PUMPAGE	64560	52390	85140	0	75900	277990	275280
		CUMULATIVE	257710	244290	360640	69780	396820		
	27-Jan-06	RATE/GPM	1.40	1.14	1.85	0.00	1.65	6.03	5.98
186						**TOTAL**		1323880	1349910
					AVG. PUMPING RATE (GPM)			4.94	5.04

NOTES:
*System - indicates the total pumpage from tabulating the meter readings at each individual well. It varies from the totals derived from the several meters recording total outflow from the filter system.
**M1 indicates the meter that reads outflow at the filter system.

See monthly pumping records contained in Appendix B for actual field data.

Revised 6/9/06

TABLE B6
SUMMARY OF REMEDIATION SYSTEM
MANOR TIMBER COMPANY
July 2004 through January 2005

Avg

DAYS	MONTH		RW1R	MW2	MW3	MW4	RW2	SYSTEM*	M1**
28	27-Jul-04	TOTAL PUMPAGE	45930	32600	54390	10740	37160	180820	207270
		CUMULATIVE							
	23-Aug-04	RATE/GPM	1.14	0.81	1.35	0.27	0.92	4.48	5.14
35	24-Aug-04	TOTAL PUMPAGE	32190	35780	46660	10560	50780	175970	170530
		CUMULATIVE	78120	68380	101050	21300	87940		
	27-Sep-04	RATE/GPM	0.64	0.71	0.93	0.21	1.1	3.49	3.38
28	28-Sep-04	TOTAL PUMPAGE	37910	10810	47700	5760	54480	156660	157630
		CUMULATIVE	116030	79190	148750	27060	142420		
	25-Oct-04	RATE/GPM	0.94	0.27	1.18	0.14	1.00	3.89	3.91
27	26-Oct-04	TOTAL PUMPAGE	37540	23640	39030	6110	49640	155960	159500
		CUMULATIVE	153570	102830	187780	33170	192060		
	22-Nov-04	RATE/GPM	0.97	0.61	1.00	0.16	1.28	4.01	4.1
35	23-Nov-04	TOTAL PUMPAGE	60770	49230	63760	9160	59590	242510	240940
		CUMULATIVE	214340	152060	251540	42330	251650		
	27-Dec-04	RATE/GPM	1.21	0.98	1.27	0.18	1.18	4.81	4.78
23	28-Dec-04	TOTAL PUMPAGE	49150	30630	45510	2100	45060	172450	170550
		CUMULATIVE	263490	182690	297050	44430	296710		
	19-Jan-05	RATE/GPM	1.48	0.92	1.37	0.06	1.36	5.21	5.15
176						TOTAL		1084370	1106420
					AVG. PUMPING RATE (GPM)			4.27	4.37

*System - indicates the total pumpage from tabulating the meter readings at each individual well. It varies from the totals derived from the several meters recording total outflow from the filter system.

**M1 indicates the meter that reads outflow at the filter system.

Revised 5/9/05

TABLE B6
SUMMARY OF REMEDIATION SYSTEM
MANOR TIMBER COMPANY
FEBRUARY 2004 THROUGH JULY 2004

DAYS	MONTH		RW1R	MW2	MW3	MW4	RW2	SYSTEM*	M1**
19	4-Feb-04	TOTAL PUMPAGE	33950	16440	3440	6590	34030	94450	104750
		CUMULATIVE							
	22-Feb-04	RATE/GPM	1.24	0.60	0.13	0.24	1.1	3.45	
29	23-Feb-04	TOTAL PUMPAGE	51720	17580	8400	21200	52710	151610	163690
		CUMULATIVE	85670	34020	11840	27790	86740		
	22-Mar-04	RATE/GPM	1.24	0.42	0.20	0.51	1.1	3.63	
35	23-Mar-04	TOTAL PUMPAGE	56300	47090	9440	11610	60900	185340	197440
		CUMULATIVE	141970	81110	21280	39400	147640		
	26-Apr-04	RATE/GPM	1.12	0.93	0.19	0.23	1.00	3.68	
28	27-Apr-04	TOTAL PUMPAGE	29820	21320	10	5790	25180	82120	84890
		CUMULATIVE	171790	102430	21290	45190	172820		
	24-May-04	RATE/GPM	0.74	0.53	0.00	0.14	0.62	2.04	
28	25-May-04	TOTAL PUMPAGE	21800	11520	7650	11780	23400	76150	77740
		CUMULATIVE	193590	113950	28940	56970	196220		
	21-Jun-04	RATE/GPM	0.54	0.29	0.19	0.29	0.58	1.89	
34	22-Jun-04	TOTAL PUMPAGE	63610	31210	30400	22380	53470	201070	207960
		CUMULATIVE	257200	145160	59340	79350	249690		
	26-Jul-04	RATE/GPM	1.30	0.64	0.62	0.46	1.09	4.11	
173						**TOTAL**		790740	836470
					AVG. PUMPING RATE (GPM)			3.17	3.36

<u>*System</u> - indicates the total pumpage from tabulating the meter readings at each individual well. It varies from the totals derived from the several meters recording total outflow from the filter system.

<u>**M1</u> indicates the meter that reads outflow at the filter system.

.31

TABLE B6
SUMMARY OF REMEDIATION SYSTEM
MANOR TIMBER COMPANY
AUGUST 2003 THROUGH JANUARY 2004

DAYS	MONTH		RW1R	MW2	MW3	MW4	RW2	SYSTEM*	M1**
36	21-Jul-03	TOTAL PUMPAGE	10840	43880	32070	1520	56260	144570	157960
		CUMULATIVE							
	25-Aug-03	RATE/GPM	0.21	0.85	0.62	0.03	0	2.79	
34	26-Aug-03	TOTAL PUMPAGE	65220	28840	54290	45790	58610	252750	280700
		CUMULATIVE	76060	72720	86360	47310			
	29-Sep-03	RATE/GPM	1.33	0.59	1.11	0.94	1.1	5.16	
28	30-Sep-03	TOTAL PUMPAGE	51470	16590	38910	36340	52660	195970	202450
		CUMULATIVE	127530	89310	125270	83650	167530		
	27-Oct-03	RATE/GPM	1.28	0.41	0.97	0.90	1.00	4.86	
28	28-Oct-03	TOTAL PUMPAGE	24900	3190	12480	16070	25260	81900	83750
		CUMULATIVE	152430	92500	137750	99720	192790		
	24-Nov-03	RATE/GPM	0.62	0.08	0.31	0.40	0.63	2.03	
27	25-Nov-03	TOTAL PUMPAGE	51290	27540	49810	33700	51360	213700	201420
		CUMULATIVE	203720	120040	187560	133420	244150		
	21-Dec-03	RATE/GPM	1.32	0.71	1.28	0.87	1.32	5.50	
44	22-Dec-03	TOTAL PUMPAGE	73660	40090	47390	36630	73700	271470	286300
		CUMULATIVE	277380	160130	234950	170050	317850		
	4-Feb-04	RATE/GPM	1.16	0.63	0.75	0.58	1.16	4.28	4.51
197						**TOTAL**		1160360	1212580
					AVG. PUMPING RATE (GPM)			4.09	4.27

7.62

*System - indicates the total pumpage from tabulating the meter readings at each individual well. It varies from the totals derived from the several meters recording total outflow from the filter system.

**M1 indicates the meter that reads outflow at the filter system.

TABLE B6
SUMMARY OF REMEDIATION SYSTEM
MANOR TIMBER COMPANY
JANUARY 2003 THROUGH JULY 2003

DAYS	MONTH		RW1R	MW2	MW3	MW4	RW2	SYSTEM*	M1**
28	28-Jan-03	TOTAL PUMPAGE	23670	14550	29210	11190	0	78620	67950
		CUMULATIVE							
	24-Feb-03	RATE/GPM	0.59	0.36	0.72	0.28	0	1.95	
29	25-Feb-03	TOTAL PUMPAGE	15450	3630	33590	15010	46010	113690	120720
		CUMULATIVE	39120	18180	62800	26200			188670
	25-Mar-03	RATE/GPM	0.37	0.09	0.80	0.36	1.1	2.72	
31	26-Mar-03	TOTAL PUMPAGE	22120	4392	36480	8600	44490	116082	123560
		CUMULATIVE	61240	22572	99280	34800	90500		312230
	28-Apr-03	RATE/GPM	0.50	0.10	0.82	0.19	1.00	2.60	
29	29-Apr-03	TOTAL PUMPAGE	35410	29588	33450	4540	50740	153728	170220
		CUMULATIVE	96650	52160	132730	39340	141240		482450
	27-May-03	RATE/GPM	0.85	0.71	0.80	0.11	1.22	3.68	
28	28-May-03	TOTAL PUMPAGE	27740	30760	24700	11910	40370	135480	138480
		CUMULATIVE	124390	82920	157430	51250	181610		621230
	25-Jun-03	RATE/GPM	0.69	0.76	0.61	0.30	1.00	3.36	
25	26-Jun-03	TOTAL PUMPAGE	22410	280	20760	10950	44670	99070	114580
		CUMULATIVE	146800	83200	178190	62200	226280	696670	735810
	21-Jul-03	RATE/GPM	0.62	0.01	0.58	0.30	1.24	2.75	
170						Average		2.84	2.96

*System - indicates the total pumpage from tabulating the mter eradings at each individual well. It varies from the totals derived from the several meters recording total outflow from the filter system.

**M1 indicates the meter that reads outflow at the filter system.

TABLE B6
SUMMARY OF REMEDIATION SYSTEM
MANOR TIMBER COMPANY
AUGUST 2002 THROUGH JANUARY 2003

DAYS	MONTH		RW1R	MW2	MW3	MW4	SYSTEM	FILTER/INTAKE
28	30-Jul-02	TOTAL PUMPAGE	13320	29120	18450	10240	71130	81020
		CUMULATIVE						
	26-Aug-02	RATE/GPM	0.33	0.72	0.46	0.25	1.76	
28	27-Aug-02	TOTAL PUMPAGE	21890	33350	25430	16350	97020	112070
		CUMULATIVE	35210	62470	43880	26590	168150	193090
	23-Sep-02	RATE/GPM	0.54	0.83	0.63	0.41	2.41	
34	24-Sep-02	TOTAL PUMPAGE	29470	51900	25430	20350	127150	140570
		CUMULATIVE	64680	114370	69310	46940	295300	333660
	27-Oct-02	RATE/GPM	0.60	1.06	0.52	0.42	2.60	
36	28-Oct-02	TOTAL PUMPAGE	28250	41680	27730	12670	110370	119660
		CUMULATIVE	92930	156050	97040	59610	405620	453320
	2-Dec-02	RATE/GPM	0.55	0.80	0.53	0.24	2.13	
28	3-Dec-02	TOTAL PUMPAGE	22460	43400	25610	8730	100200	106090
		CUMULATIVE	115390	199450	122650	68340	505820	559410
	30-Dec-02	RATE/GPM	0.56	1.08	0.64	0.22	2.49	
28	31-Dec-02	TOTAL PUMPAGE	24140	45040	21260	13810	104250	116430
		CUMULATIVE	139530	244490	143910	82150	610070	675840
	27-Jan-03	RATE/GPM	0.60	1.12	0.53	0.34	2.59	
182						Average	2.33	2.57

NOTES: Cumulative total gallons of filter intake is greater than computed by pump end meter readings. This is shown on monthly report as exp/pond. This difference is approximately 11%.

0.31

System - indicates total obtained by adding meter reading from each pump
Filter/Intake - meter reading at intake of filter system

TABLE B6
SUMMARY OF REMEDIATION SYSTEM
MANOR TIMBER COMPANY

JANUARY 2003 THROUGH JULY 2003
Feb

DAYS	MONTH		RW1R	MW2	MW3	MW4	RW2	SYSTEM*	M1**
28	28-Jan-03	TOTAL PUMPAGE	23670	14550	29210	11190	0	78620	67950
		CUMULATIVE							
	24-Feb-03	RATE/GPM	0.59	0.36	0.72	0.28	0	1.95	
29	25-Feb-03	TOTAL PUMPAGE	15450	3630	33590	15010	46010	113690	120720
		CUMULATIVE	39120	18180	62800	26200			188670
	25-Mar-03	RATE/GPM	0.37	0.09	0.80	0.36	1.1	2.72	
31	26-Mar-03	TOTAL PUMPAGE	22120	4392	36480	8600	44490	116082	123560
		CUMULATIVE	61240	22572	99280	34800	90500		312230
	28-Apr-03	RATE/GPM	0.50	0.10	0.82	0.19	1.00	2.60	
29	29-Apr-03	TOTAL PUMPAGE	35410	29588	33450	4540	50740	153728	170220
		CUMULATIVE	96650	52160	132730	39340	141240		482450
	27-May-03	RATE/GPM	0.85	0.71	0.80	0.11	1.22	3.68	
28	28-May-03	TOTAL PUMPAGE	27740	30760	24700	11910	40370	135480	138480
		CUMULATIVE	124390	82920	157430	51250	181610		621230
	25-Jun-03	RATE/GPM	0.69	0.76	0.61	0.30	1.00	3.36	
25	26-Jun-03	TOTAL PUMPAGE	22410	280	20760	10950	44670	99070	114580
		CUMULATIVE	146800	83200	178190	62200	226280	696670	735810
	21-Jul-03	RATE/GPM	0.62	0.01	0.58	0.30	1.24	2.75	
170						Average		2.84	2.96

*System - indicates the total pumpage from tabulating the mter eradings at each individual well. It varies from the totals derived from the several meters recording total outflow from the filter system.

**M1 indicates the meter that reads outflow at the filter system.

, 26

TABLE B6
SUMMARY OF REMEDIATION SYSTEM
MANOR TIMBER COMPANY
AUGUST 2002 THROUGH JANUARY 2003

DAYS	MONTH		RW1R	MW2	MW3	MW4	SYSTEM	FILTER/INTAKE
28	30-Jul-02	TOTAL PUMPAGE	13320	29120	18450	10240	71130	81020
		CUMULATIVE						
	26-Aug-02	RATE/GPM	0.33	0.72	0.46	0.25	1.76	
28	27-Aug-02	TOTAL PUMPAGE	21890	33350	25430	16350	97020	112070
		CUMULATIVE	35210	62470	43880	26590	168150	193090
	23-Sep-02	RATE/GPM	0.54	0.83	0.63	0.41	2.41	
34	24-Sep-02	TOTAL PUMPAGE	29470	51900	25430	20350	127150	140570
		CUMULATIVE	64680	114370	69310	46940	295300	333660
	27-Oct-02	RATE/GPM	0.60	1.06	0.52	0.42	2.60	
36	28-Oct-02	TOTAL PUMPAGE	28250	41680	27730	12670	110370	119660
		CUMULATIVE	92930	156050	97040	59610	405620	453320
	2-Dec-02	RATE/GPM	0.55	0.80	0.53	0.24	2.13	
28	3-Dec-02	TOTAL PUMPAGE	22460	43400	25610	8730	100200	106090
		CUMULATIVE	115390	199450	122650	68340	505820	559410
	30-Dec-02	RATE/GPM	0.56	1.08	0.64	0.22	2.49	
28	31-Dec-02	TOTAL PUMPAGE	24140	45040	21260	13810	104250	116430
		CUMULATIVE	139530	244490	143910	82150	610070	675840
	27-Jan-03	RATE/GPM	0.60	1.12	0.53	0.34	2.59	
182						Average	2.33	2.57

NOTES: Cumulative total gallons of filter intake is greater than computed by pump end meter readings. This is shown on monthly report as exp/pond. This difference is approximately 11%.

System - indicates total obtained by adding meter reading from each pump
Filter/Intake - meter reading at intake of filter system

TABLE B6
SUMMARY OF REMEDIATION SYSTEM
MANOR TIMBER COMPANY
FEBRUARY 2002 THROUGH JULY 2002

DAYS	MONTH		RW1R	MW2	MW3	MW4	SYSTEM	FILTER/INTAKE
27	30-Jan-02	TOTAL PUMPAGE	21750	26260	21990	13710	83710	89930
	to	CUMULATIVE						
	25-Feb-02	RATE/GPM	0.56	0.68	0.57	0.35	2.15	
28	26-Feb-02	TOTAL PUMPAGE	39700	40330	35420	16390	131840	136270
	to	CUMULATIVE	61450	66590	57410	30100	215550	226200
	25-Mar-02	RATE/GPM	0.98	1.00	0.88	0.41	3.27	
36	26-Mar-02	TOTAL PUMPAGE	50890	40720	45510	25410	162530	173300
	to	CUMULATIVE	112340	107310	102920	55510	378080	399500
	30-Apr-02	RATE/GPM	0.98	0.78	0.88	0.30	3.13	
27	1-May-02	TOTAL PUMPAGE	32510	37940	26520	15690	112660	122240
	to	CUMULATIVE	144850	145250	129440	71200	490740	521740
	27-May-02	RATE/GPM	0.84	0.98	0.68	0.40	2.90	
29	28-May-02	TOTAL PUMPAGE	29520	37850	24090	17230.0	108690.0	121520
	to	CUMULATIVE	174370	183100	153530	88430.0	599430.0	643260
	25-Jun-02	RATE/GPM	0.71	0.91	0.58	0.41	2.60	
35	26-Jun-02	TOTAL PUMPAGE	19620	35580	23960	14950	94110	103340
	to	CUMULATIVE	193990	218680	177490	103380	693540	746600
	30-Jul-02	RATE/GPM	0.39	0.71	0.47	0.30	1.87	
182						Average	2.65	2.84 gpm

NOTES: Cumulative total gallons of filter intake is greater than computed by pump end meter readings. This is shown on monthly report as exp/pond. This difference is only around 1%.

.36

System - indicates total obtained by adding meter reading from each pump
Filter/Intake - meter reading at intake of filter system

TABLE B6
SUMMARY OF REMEDIATION SYSTEM
MANOR TIMBER COMPANY
AUGUST 2001 THROUGH JANUARY 2002

DAYS	MONTH		RW1R	MW2	MW3A	MW4A	SYSTEM	FILTER/INTAKE
30	30-Jul-01	TOTAL PUMPAGE	40760	21450	30950	15470	108630	120630
	to	CUMULATIVE						
	29-Aug-01	RATE/GPM	0.94	0.5	0.72	0.36	2.51	
27	29-Aug-01	TOTAL PUMPAGE	32790	34960	34310	12390	114450	123120
	to	CUMULATIVE	73350	56410	65260	27860	223080	243750
	24-Sep-01	RATE/GPM	0.84	0.90	0.88	0.32	2.94	
29	25-Sep-01	TOTAL PUMPAGE	37840	42470	26910	17610	124830	128180
	to	CUMULATIVE	111390	98880	92170	45470	347910	372300
	23-Oct-01	RATE/GPM	0.91	1.02	0.64	0.42	2.99	
35	24-Oct-01	TOTAL PUMPAGE	46810	43550	33140	18180	141680	148550
	to	CUMULATIVE	158200	142430	125310	63650	489590	520850
	27-Nov-01	RATE/GPM	0.93	0.86	0.66	0.36	2.81	
30	28-Nov-01	TOTAL PUMPAGE	23040	35550	30030	13180.0	105870.0	112810
	to	CUMULATIVE	181240	177980	155340	76830.0	595460.0	633660
	27-Dec-01	RATE/GPM	0.53	0.82	0.69	0.31	2.45	
31	28-Dec-01	TOTAL PUMPAGE	24550	40550	34300	13180	112580	123420
	to 2	CUMULATIVE	205790	218530	189640	90010	708040	757080
	29-Jan-01	RATE/GPM	0.55	0.91	0.77	0.29	2.52	
182							Average 2.70	2.88 gpm

NOTES: Cumulative total gallons of filter intake is greater than computed by pump end meter readings. This is shown on monthly report as exp/pond. This difference is only around 1%.

System - indicates total obtained by adding meter reading from each pump
Filter/Intake - meter reading at intake of filter system

TABLE B6
SUMMARY OF REMEDIATION SYSTEM
MANOR TIMBER COMPANY
FEBRUARY - JULY 2001

DAYS	MONTH		RW1R	MW2	MW3	MW4	SYSTEM	FILTER/INTAKE
27	31-Jan-01	TOTAL PUMPAGE	37890	46030	43530	17850	145300	146430
	to	CUMULATIVE						
	26-Feb-01	RATE/GPM	0.97	1.18	1.12	0.46	3.74	
27	27-Feb-01	TOTAL PUMPAGE	50970	45540	51020	19030	166560	172010
	to	CUMULATIVE	88860	91570	94550	36880	311860	318440
	25-Mar-01	RATE/GPM	1.31	1.17	1.31	0.49	4.28	
28	26-Mar-01	TOTAL PUMPAGE	72550	48260	43110	15230	179150	186470
	to	CUMULATIVE	161410	139830	137660	52110	491010	504940
	22-Apr-01	RATE/GPM	1.80	1.19	1.07	0.37	4.44	
35	23-Apr-01	TOTAL PUMPAGE	58970	74760	35480	20000	194330	201880
	to	CUMULATIVE	220380	214590	173140	72110	685340	706820
	27-May-01	RATE/GPM	1.17	1.48	0.70	0.39	3.86	
29	28-May-01	TOTAL PUMPAGE	61280	67210	36820	18890	179080	188760
	to	CUMULATIVE	281660	281800	209960	91000	864420	895580
	25-Jun-01	RATE/GPM	1.46	1.61	0.88	0.45	4.29	
34	26-Jun-01	TOTAL PUMPAGE	66530	41640	53990	22980	185140	196160
	to	CUMULATIVE	348190	323440	263950	113980	1049560	1091740
	29-Jul-01	RATE/GPM	1.36	0.85	1.10	0.46	3.78	

NOTE: Cumulative total gallons of filter intake is greater than computed by pump end meter readings. This is shown on monthly report as exp/pond. This difference is only around 1%.

The monthly production figures are taken from the data shown on the printouts in Appendix B and reflect a total of 180 days of operation.

TABLE B6
SUMMARY OF REMEDIATION SYSTEM
MANOR TIMBER COMPANY

DAYS	MONTH		RW1R	MW2	MW3	MW4	SYSTEM	FILTER/INTAKE
36	24-Jul-00	TOTAL PUMPAGE	64940	50930	30240	23300	169410	162950
	to	CUMULATIVE						
	29-Aug-00	RATE/GPM	1.25	0.98	0.58	0.45	3.27	
28	29-Aug-00	TOTAL PUMPAGE	57170	55380	55140	20610	188260	194020
	to	CUMULATIVE	122110	106310	85340	43910	357670	356970
	26-Sep-00	RATE/GPM	1.41	1.37	1.37	0.51	4.67	
28	26-Sep-00	TOTAL PUMPAGE	50510	47680	37280	17100	152570	157350
	to	CUMULATIVE	172620	153990	122620	67010	510240	514320
	24-Oct-00	RATE/GPM	1.25	1.18	0.92	0.42	3.8	
35	24-Oct-00	TOTAL PUMPAGE	56920	62140	54770	22630	196460	199390
	to	CUMULATIVE	229450	216130	177390	83640	706700	713710
	28-Nov-00	RATE/GPM	1.13	1.2	1.09	0.44	3.9	
28	28-Nov-00	TOTAL PUMPAGE	50270	50500	52750	20280	173800	176010
	to	CUMULATIVE	279810	266630	230140	103920	880500	889710
	26-Dec-00	RATE/GPM	1.24	1.25	1.31	0.5	4.31	
36	26-Dec-00	TOTAL PUMPAGE	63610	60740	67850	26330	218530	224170
	to	CUMULATIVE	343420	327370	297990	130250	1099030	1113890
	31-Jan-01	RATE/GPM	1.2	1.2	1.31	0.51	4.22	

NOTE: Cumulative total gallons of filter intake is greater than computed by pump end meter readings. This is shown on monthly report as exp/pond. This difference is only around 1%.

LEGEND

- WATER SPIGOT
- FIRE HYDRANT
- ×157.0 AVERAGE GROUND ELEVATION
- PIZOMETER
- RECOVERY WELL
- MONITORING WELL
- — X — X — FENCE LINE
- RAILROAD TRACKS

GENERAL NOTES

1. THIS TOPOGRAPHIC MAP HAS BEEN COMPLIED FROM SITE INVESTIGATION AND VARIOUS MAPS, PLATS, DEEDS, AND REFERENCES PREPARED BY OTHERS.
2. DITCHES LOCATED WITHIN THE FACILITY WERE HOLDING SURFACE WATER ON DATE OF SITE INVESTIGATION AND DID NOT APPEAR TO BE DRAINING.
3. ACCORDING TO THE FLOOD INSURANCE RATE MAPS, AS PREPARED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY, THIS PROPERTY DOES NOT LIE IN A SPECIAL FLOOD HAZARD AREA. (COMMUNITY PANEL NO. 130048-B, DATED: 8/01/1986.
4. THIS TOPOGRAPHIC MAP HAS BEEN PREPARED ACCORDING TO REQUIREMENTS ESTABLISHED BY THE FEDERAL ENVIRONMENTAL PROTECTION AGENCY AND ALSO REVIEW COMMENTS ISSUED BY THE GEORGIA ENVIRONMENTAL PROTECTION DIVISION. IMPROVEMENTS MAY EXIST ON THIS PROPERTY OTHER THAN THOSE SHOWN HEREON.

MONITORING WELLS

WELL	TOP	GROUND
MW-1	160.13	158.0
MW-1A	160.35	157.7
MW-3	160.68	158.3
MW-3B	160.89	158.8
MW-4B	161.43	158.8
MW-5	161.40	159.6
MW-6	161.11	158.9
MW-7	159.65	158.2
MW-8	159.10	157.4
MW-9	156.98	156.2
MW-10	159.91	157.9
MW-11	157.20	156.0
MW-12	159.56	157.5
MW-13	159.86	158.7
MW-14	157.20	156.0
MW-15	158.84	157.2
MW-17	157.95	155.4
MW-18	158.93	156.1
MW-19	160.47	157.6

PIZOMETER

WELL	TOP	GROUND
AB-5	159.83	157.7

NO.	DATE	DESCRIPTION
1		
2		
3		
4		
5		
6		
7		

REVISIONS

KRI KENNEDY RAGSDALE & ASSOCIATES INC.
Engineers, Landscape Architects, Development Consultants
35 BARNARD ST., SUITE 201
SAVANNAH, GA 31401
PH (912) 495-9626 FAX (912) 495-9628
WWW.KRI-ENG.COM

FACILITY TOPOGRAPHIC MAP

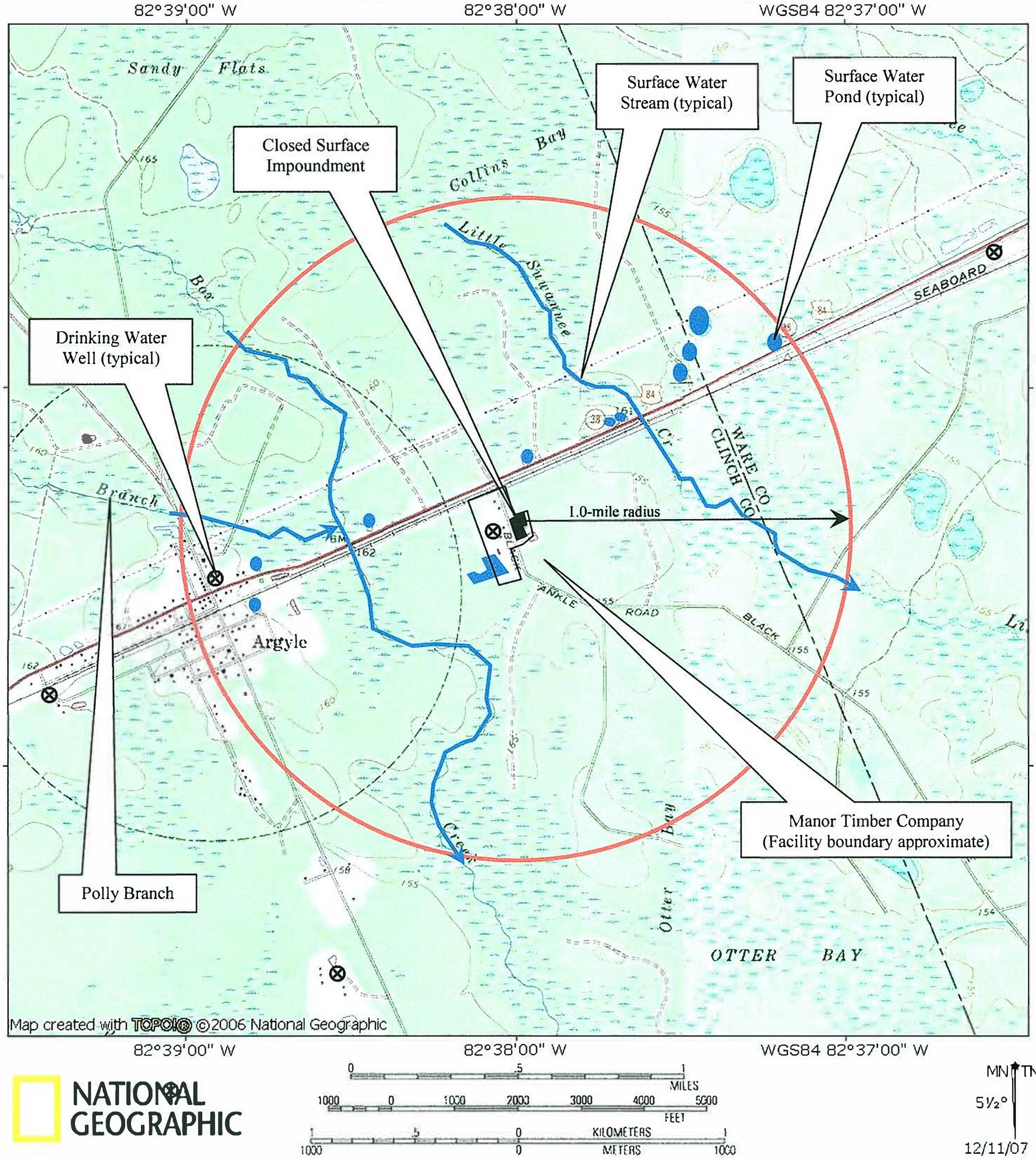
MANOR TIMBER COMPANY, CLINCH COUNTY, GEORGIA

PREPARED FOR:
MANOR TIMBER COMPANY, INCORPORATED

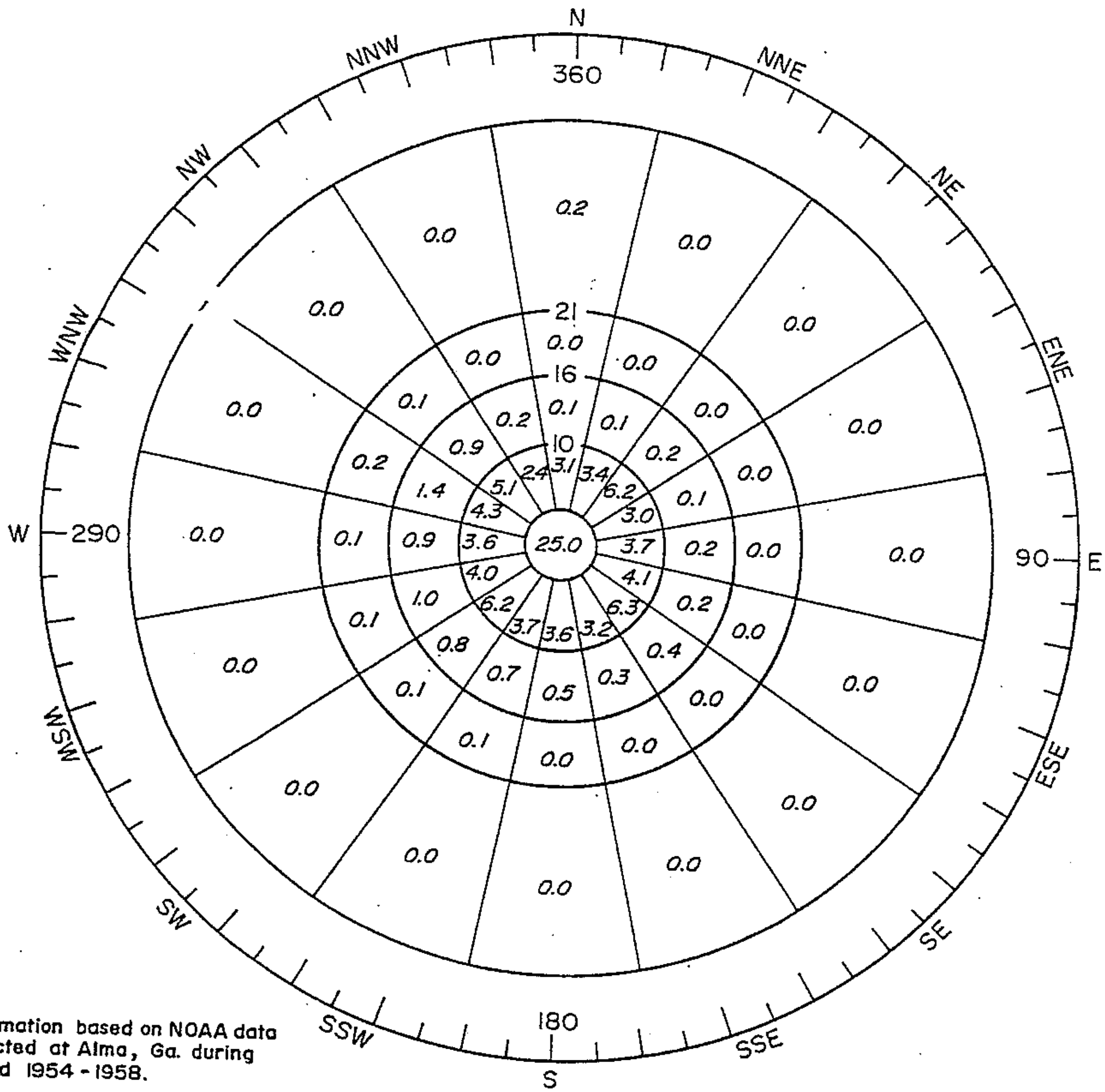
PROJECT #:	070431.00
FIELD DATE:	1/15/2008
PLATE DATE:	2/14/2008
DRAWN BY:	NBA
CHECKED BY:	JCB
SCALE:	1"=80'

FIGURE B-1

Map prepared from a copy of the USGS Homerville, East, Ga 1988 7.5 minute Quadrangle.



Envirorisk Consultants, Inc. PO Box 945 Grayson, GA 30017	MANOR TIMBER COMPANY 102 BLCK ANKLE ROAD MANOR, CLINCH COUNTY, GEORGIA GEORGIA HAZARDOUS WASTE PERMIT NO. HW-047 (D)	FIGURE **B-2**

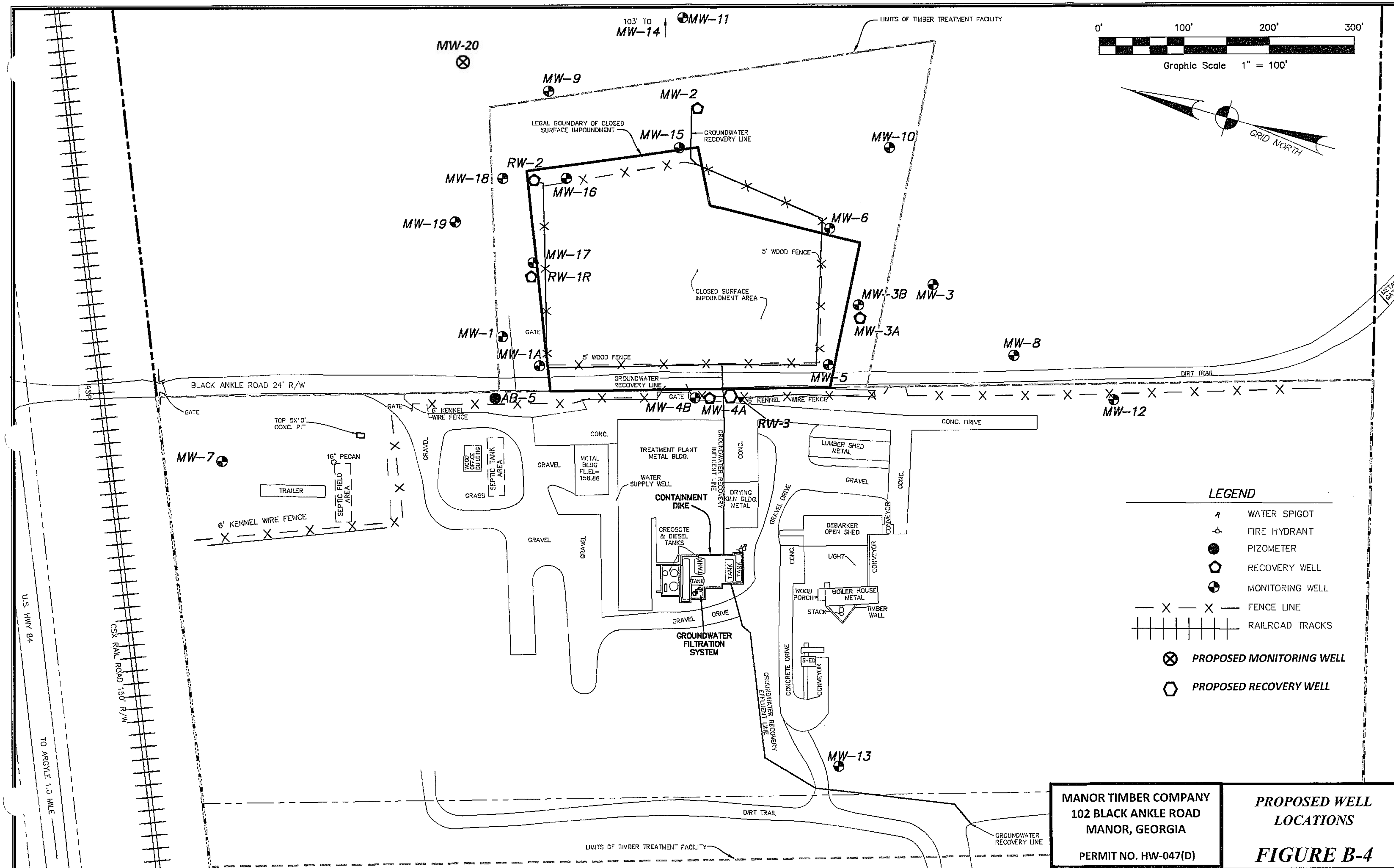


NOTES

1. Information based on NOAA data collected at Alma, Ga. during period 1954 - 1958.
2. Prevailing wind out of the SW at average speed of 7.6 knots.

WIND ROSE

FIGURE B-3

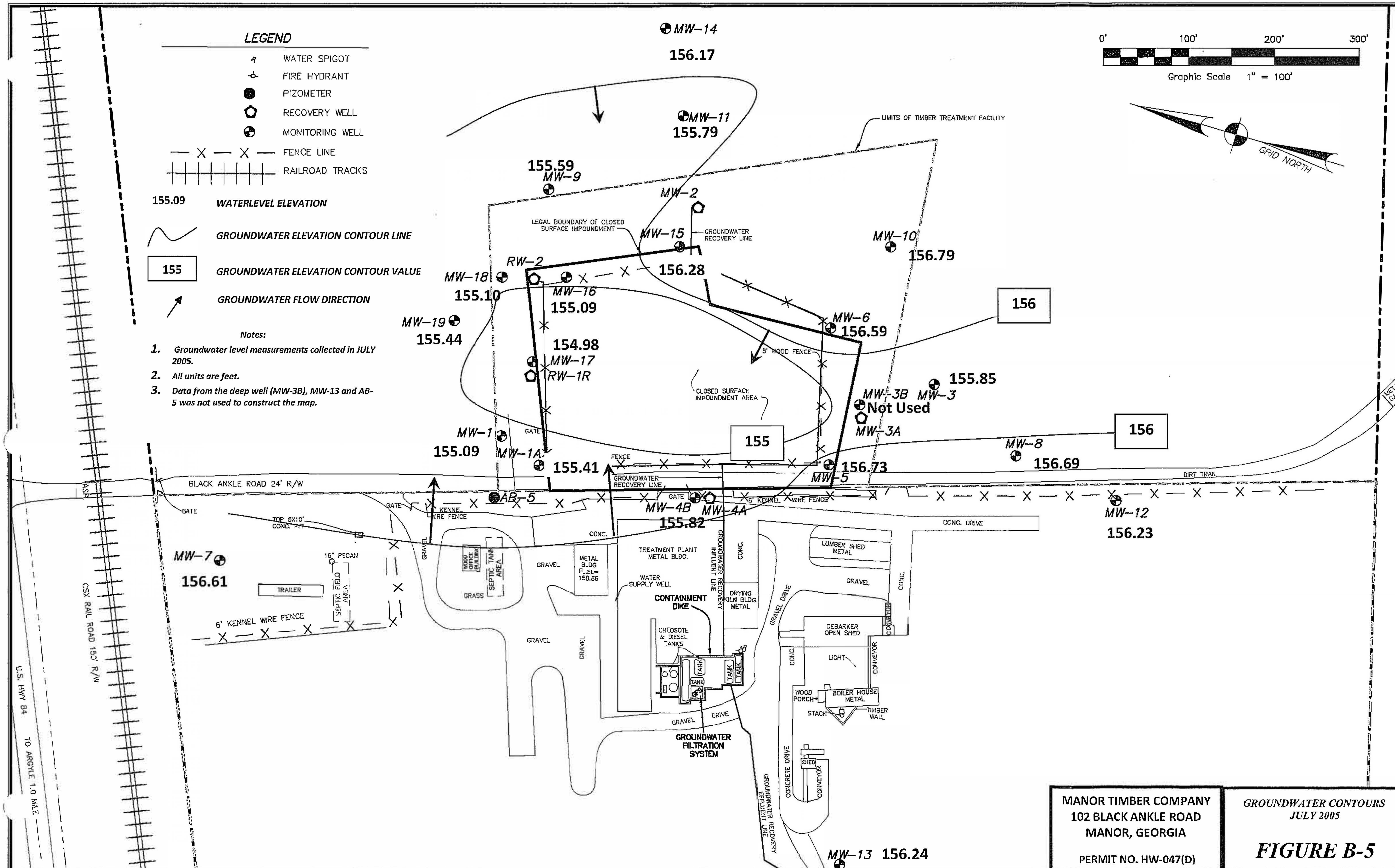


MANOR TIMBER COMPANY
102 BLACK ANKLE ROAD
MANOR, GEORGIA

PERMIT NO. HW-047(D)

PROPOSED WELL LOCATIONS

FIGURE B-4

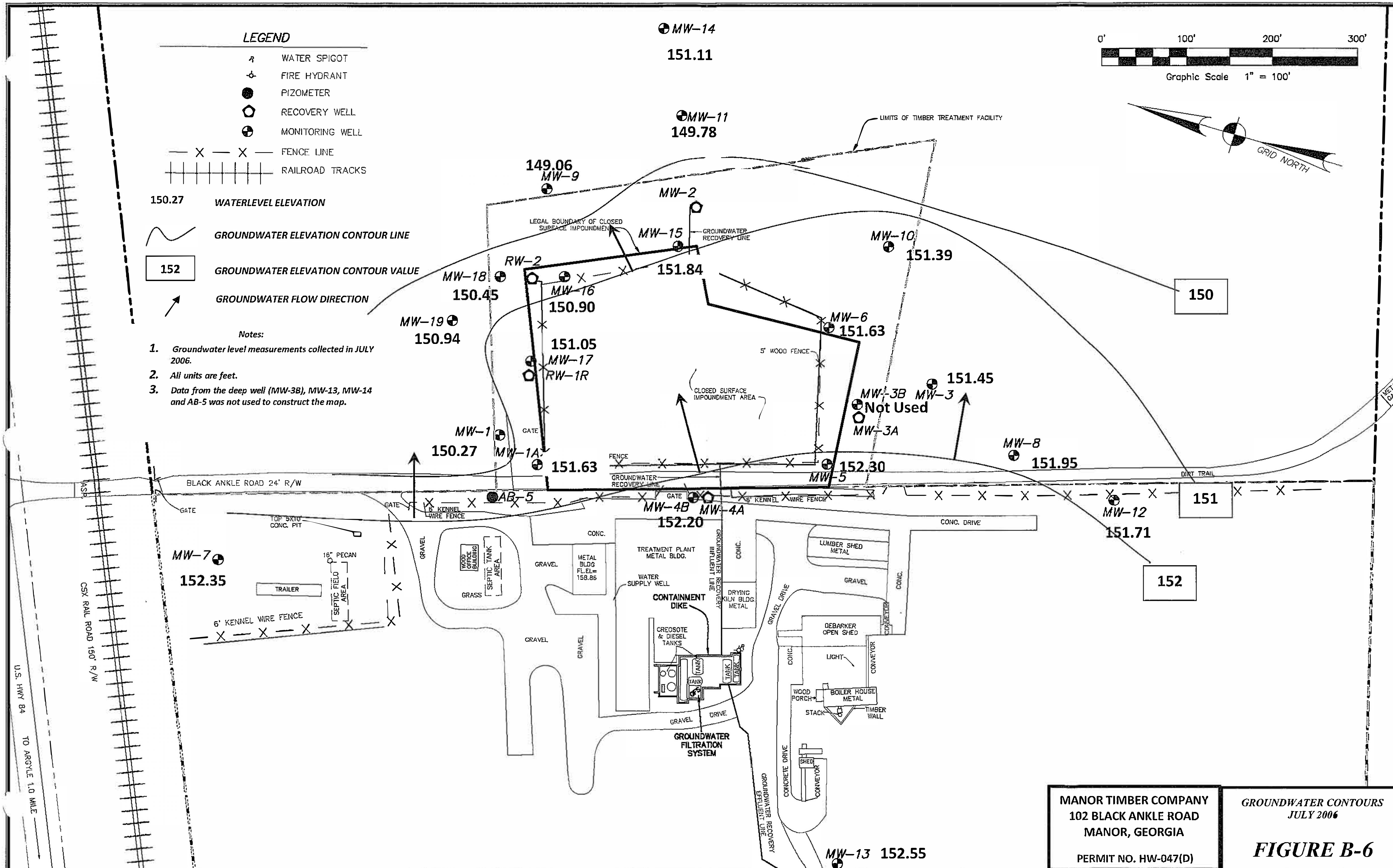


MANOR TIMBER COMPANY
102 BLACK ANKLE ROAD
MANOR, GEORGIA

PERMIT NO. HW-047(D)

GROUNDWATER CONTOURS
JULY 2005

FIGURE B-5

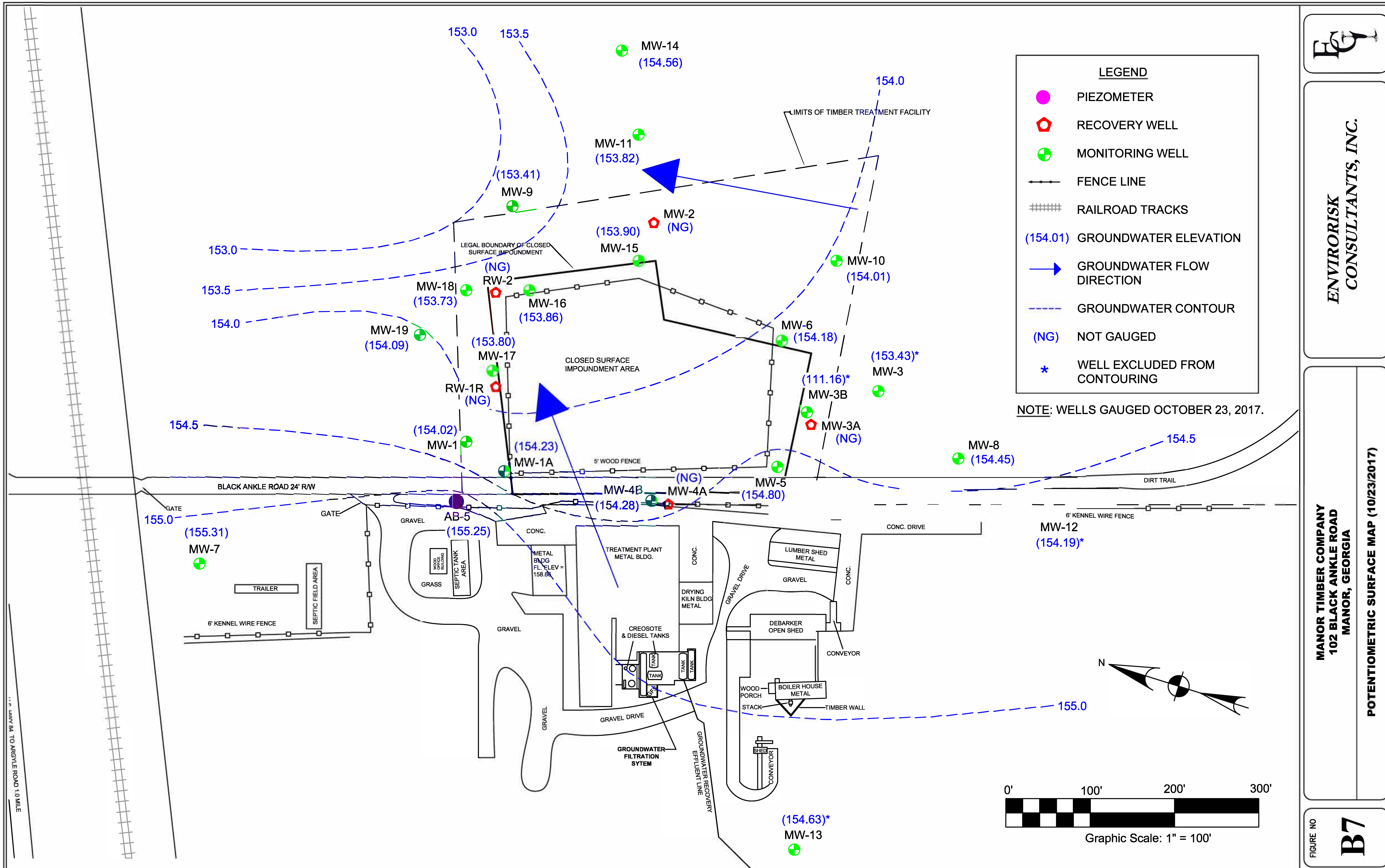


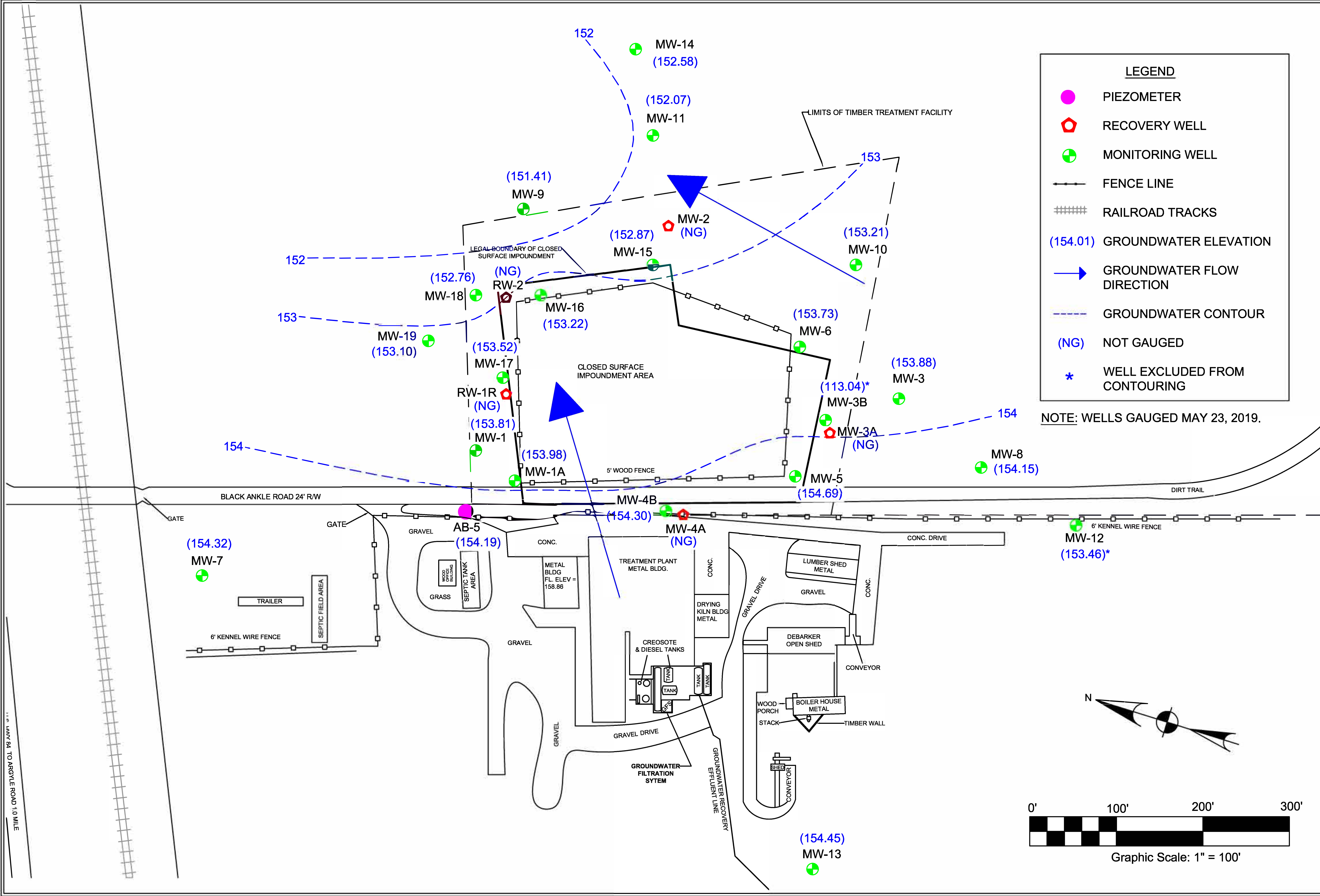
MANOR TIMBER COMPANY
102 BLACK ANKLE ROAD
MANOR, GEORGIA

PERMIT NO. HW-047(D)

GROUNDWATER CONTOURS
JULY 2006

FIGURE B-6


LEGEND
PIEZOMETER
RECOVERY WELL
MONITORING WELL
FENCE LINE
RAILROAD TRACKS
(154.01) GROUNDWATER ELEVATION
GROUNDWATER FLOW DIRECTION
GROUNDWATER CONTOUR
(NG) NOT GAUGED
* WELL EXCLUDED FROM CONTOURING
NOTE: WELLS GAUGED OCTOBER 23, 2017.
153.0
153.5
154.0
154.5
155.0
MW-14 (154.56)
MW-11 (153.82)
MW-9 (153.41)
MW-2 (NG)
MW-15 (153.90)
MW-10 (154.01)
MW-18 (153.73)
RW-2 (NG)
MW-16 (153.86)
MW-19 (154.09)
MW-17 (153.80)
MW-6 (154.18)
MW-3 (153.43)*
MW-3B (111.16)*
MW-3A (NG)
RW-1R (NG)
MW-1 (154.02)
MW-1A (154.23)
MW-8 (154.45)
MW-5 (154.80)
MW-4B (154.28)
MW-4A (NG)
AB-5 (155.25)
MW-7 (155.31)
MW-12 (154.19)*
MW-13 (154.63)*
LIMITS OF TIMBER TREATMENT FACILITY
LEGAL BOUNDARY OF CLOSED SURFACE IMPOUNDMENT
CLOSED SURFACE IMPOUNDMENT AREA
5' WOOD FENCE
BLACK ANKLE ROAD 24' R/W
DIRT TRAIL
GATE
GRAVEL
CONC.
6' KENNEL WIRE FENCE
CONC. DRIVE
TREATMENT PLANT METAL BLDG.
METAL BLDG FL. ELEV = 158.86
DRYING KILN BLDG METAL
LUMBER SHED METAL
GRAVEL DRIVE
DEBARKER OPEN SHED
CONVEYOR
CREOSOTE & DIESEL TANKS
TANK
WOOD PORCH
BOILER HOUSE METAL
STACK
TIMBER WALL
SHED
GROUNDWATER FILTRATION SYTEM
GROUNDWATER RECOVERY EFFLUENT LINE
TRAILER
SEPTIC FIELD AREA
SEPTIC TANK AREA
GRASS
U.S. HWY 84 TO ARGYLE ROAD 1.0 MILE
N
0' 100' 200' 300'
Graphic Scale: 1" = 100'
ENVIRORISK CONSULTANTS, INC.
MANOR TIMBER COMPANY
102 BLACK ANKLE ROAD
MANOR, GEORGIA
POTENTIOMETRIC SURFACE MAP (10/23/2017)
FIGURE NO
B7

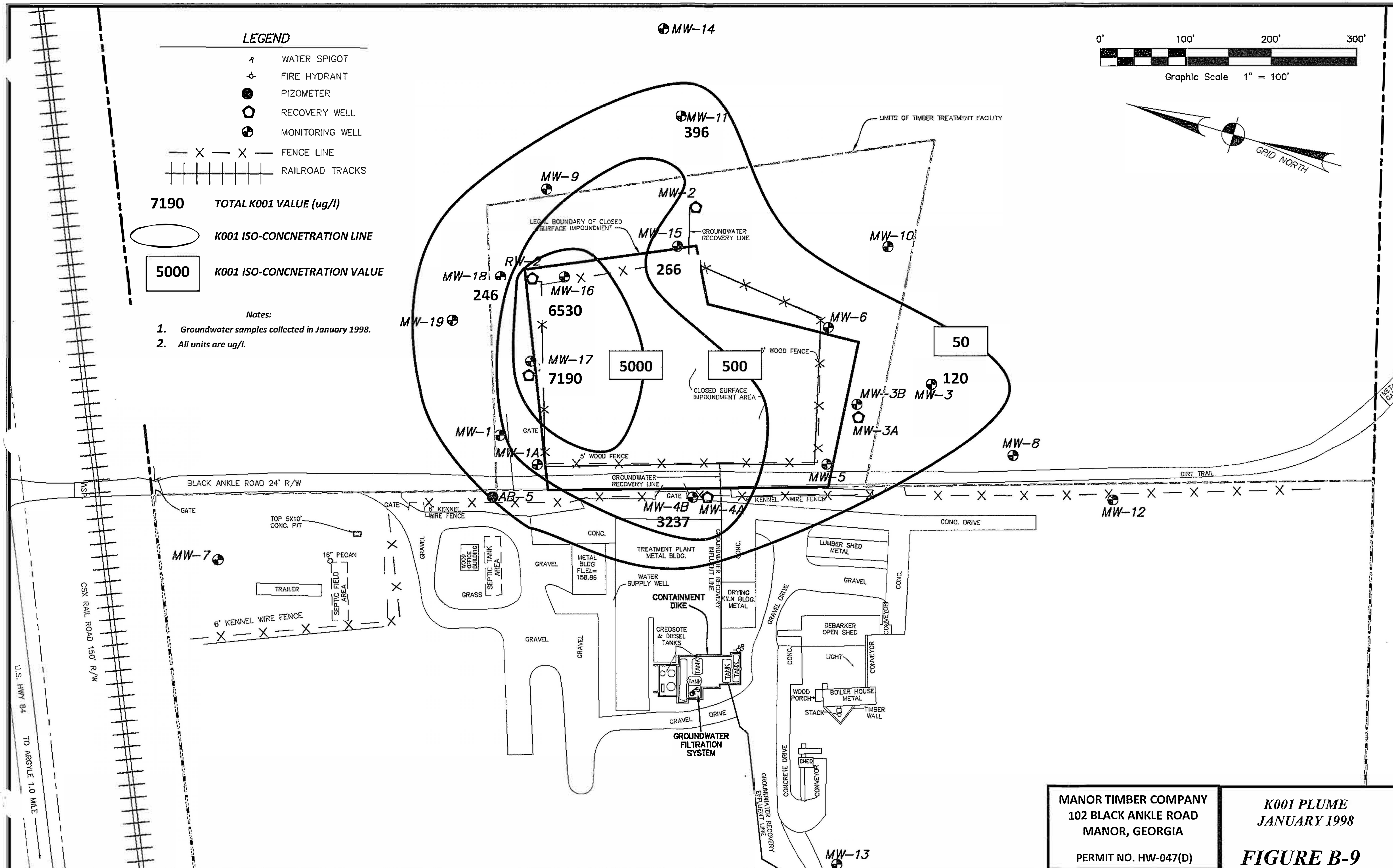


ENVIRORISK CONSULTANTS, INC.

MANOR TIMBER COMPANY
102 BLACK ANKLE ROAD
MANOR, GEORGIA

POTENTIOMETRIC SURFACE MAP (5/23/2019)

FIGURE NO
B8

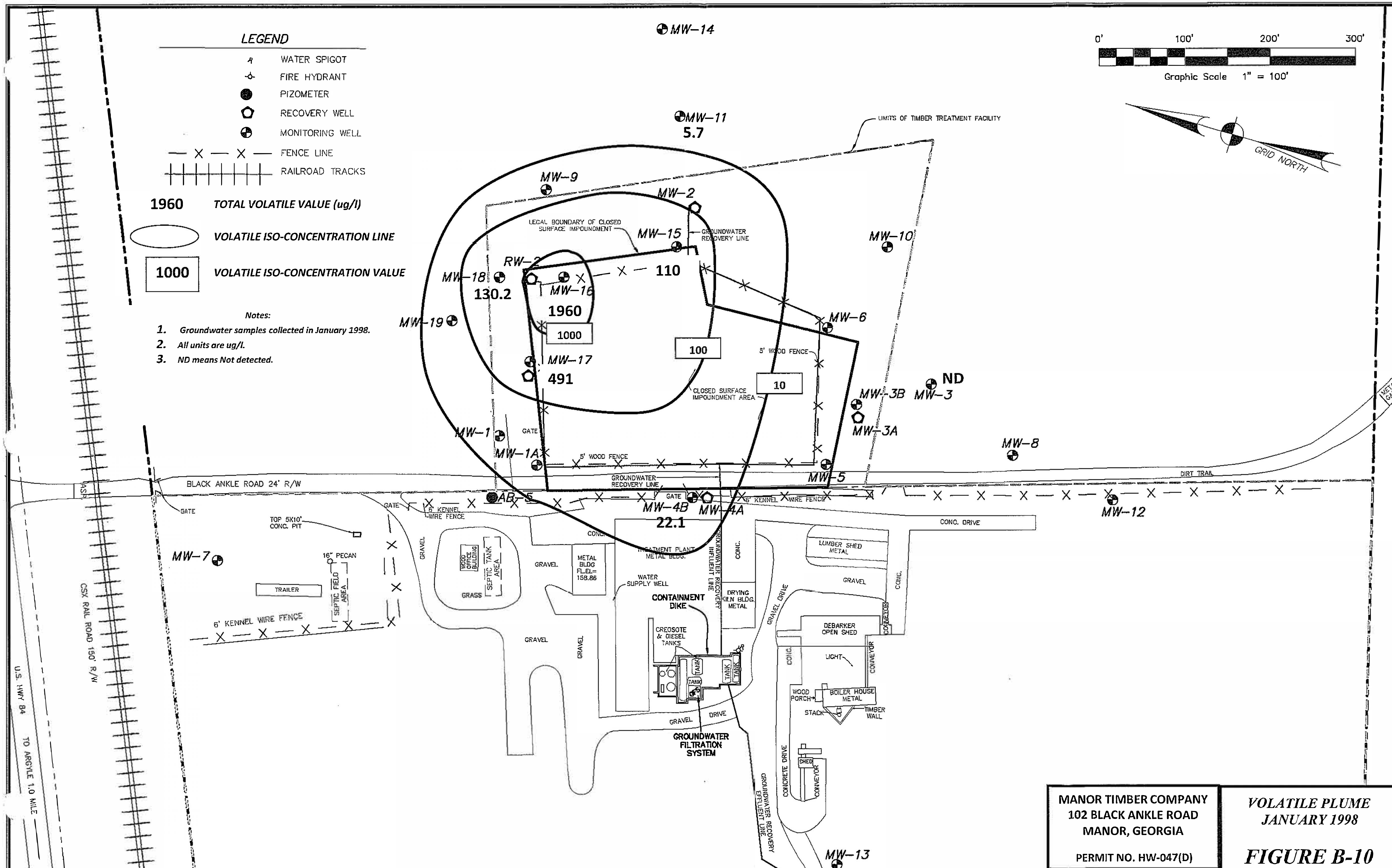


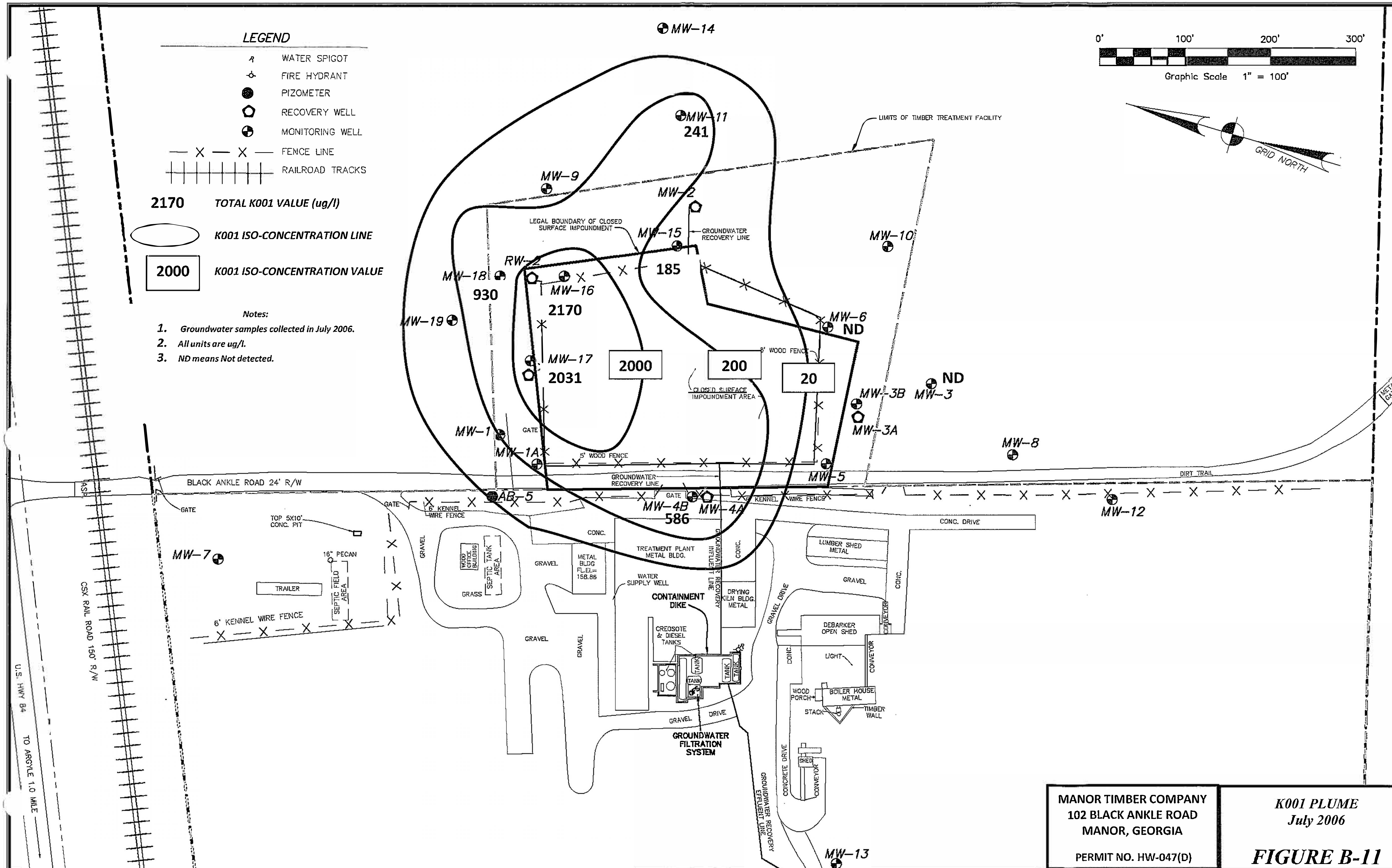
MANOR TIMBER COMPANY
102 BLACK ANKLE ROAD
MANOR, GEORGIA

PERMIT NO. HW-047(D)

K001 PLUME
JANUARY 1998

FIGURE B-9


LEGEND
WATER SPIGOT
FIRE HYDRANT
PIZOMETER
RECOVERY WELL
MONITORING WELL
FENCE LINE
RAILROAD TRACKS
1960 TOTAL VOLATILE VALUE (ug/l)
VOLATILE ISO-CONCENTRATION LINE
1000 VOLATILE ISO-CONCENTRATION VALUE
Notes:
1. Groundwater samples collected in January 1998.
2. All units are ug/l.
3. ND means Not detected.
0' 100' 200' 300'
Graphic Scale 1" = 100'
GRID NORTH
LIMITS OF TIMBER TREATMENT FACILITY
MW-14
MW-11
5.7
MW-9
MW-2
LEGAL BOUNDARY OF CLOSED SURFACE IMPOUNDMENT
MW-15
GROUNDWATER RECOVERY LINE
MW-10
RW-2
MW-18
130.2
MW-16
1960
110
MW-19
1000
100
MW-6
5' WOOD FENCE
MW-17
491
10
CLOSED SURFACE IMPOUNDMENT AREA
ND
MW-3B
MW-3
MW-3A
MW-1
GATE
MW-1A
5' WOOD FENCE
MW-8
GROUNDWATER RECOVERY LINE
MW-5
DIRT TRAIL
BLACK ANKLE ROAD 24' R/W
ASP
GATE
AB-5
GATE
6' KENNEL WIRE FENCE
MW-4B
22.1
MW-4A
6' KENNEL WIRE FENCE
MW-12
METAL GATE
TOP 5X10' CONC. PIT
CONC. DRIVE
LUMBER SHED METAL
MW-7
16" PECAN
GRAVEL
WOOD OFFICE BUILDING
SEPTIC TANK AREA
GRASS
GRAVEL
METAL BLDG FL.EL= 158.86
CONC.
TREATMENT PLANT METAL BLDG.
WATER SUPPLY WELL
GROUNDWATER RECOVERY INFLUENT LINE
CONC.
DRYING KILN BLDG. METAL
GRAVEL
CONC.
TRAILER
SEPTIC FIELD AREA
6' KENNEL WIRE FENCE
CSX RAIL ROAD 150' R/W
CONTAINMENT DIKE
CREOSOTE & DIESEL TANKS
TANK
TANK
TANK
TANK
GRAVEL
GRAVEL
GRAVEL DRIVE
DEBARKER OPEN SHED
CONVEYOR
CONVEYOR
LIGHT
CONC.
WOOD PORCH
BOILER HOUSE METAL
STACK
TIMBER WALL
GRAVEL DRIVE
GROUNDWATER FILTRATION SYSTEM
GROUNDWATER RECOVERY EFFLUENT LINE
CONCRETE DRIVE
SHED
CONVEYOR
U.S. HWY 84 TO ARGYLE 1.0 MILE
MW-13
MANOR TIMBER COMPANY
102 BLACK ANKLE ROAD
MANOR, GEORGIA
PERMIT NO. HW-047(D)
VOLATILE PLUME
JANUARY 1998
FIGURE B-10

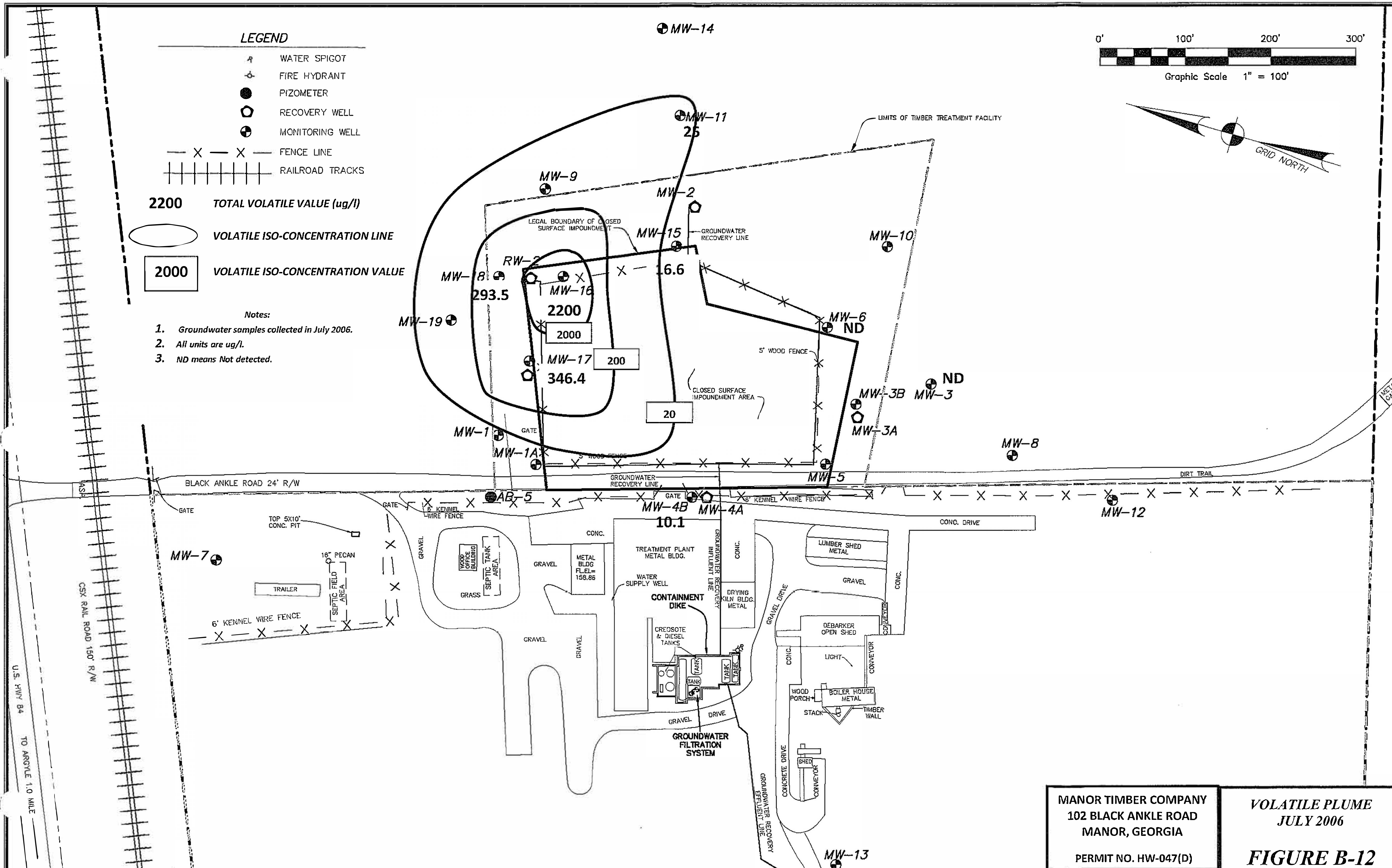


MANOR TIMBER COMPANY
102 BLACK ANKLE ROAD
MANOR, GEORGIA

PERMIT NO. HW-047(D)

K001 PLUME
July 2006

FIGURE B-11



VOLATILE PLUME
JULY 2006

FIGURE B-12

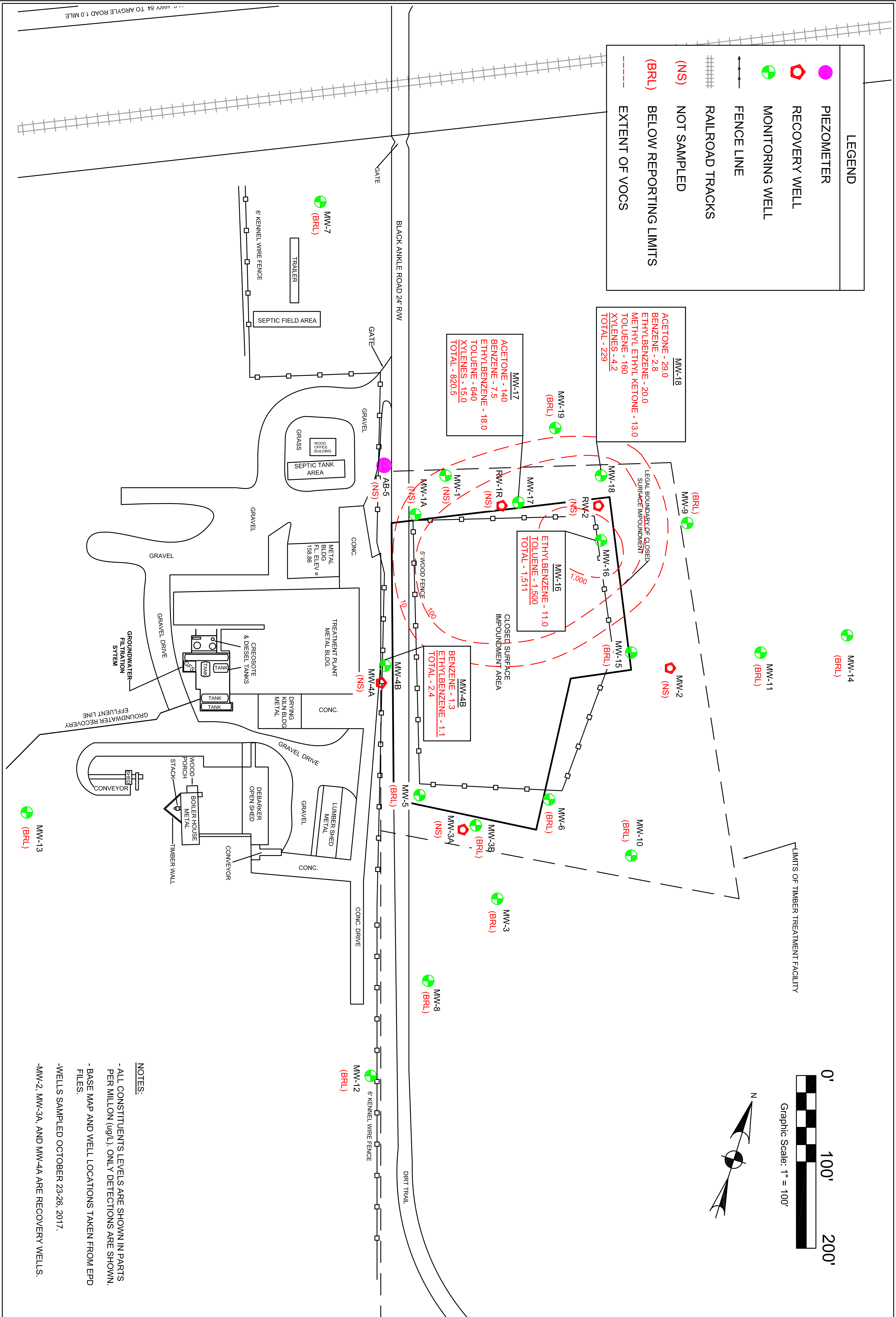


FIGURE NO **B13**

MANOR TIMBER COMPANY
102 BLACK ANKLE ROAD
MANOR, GEORGIA

HORIZONTAL EXTENT OF VOCs (OCTOBER 2017)

ENVIRORISK CONSULTANTS, INC.

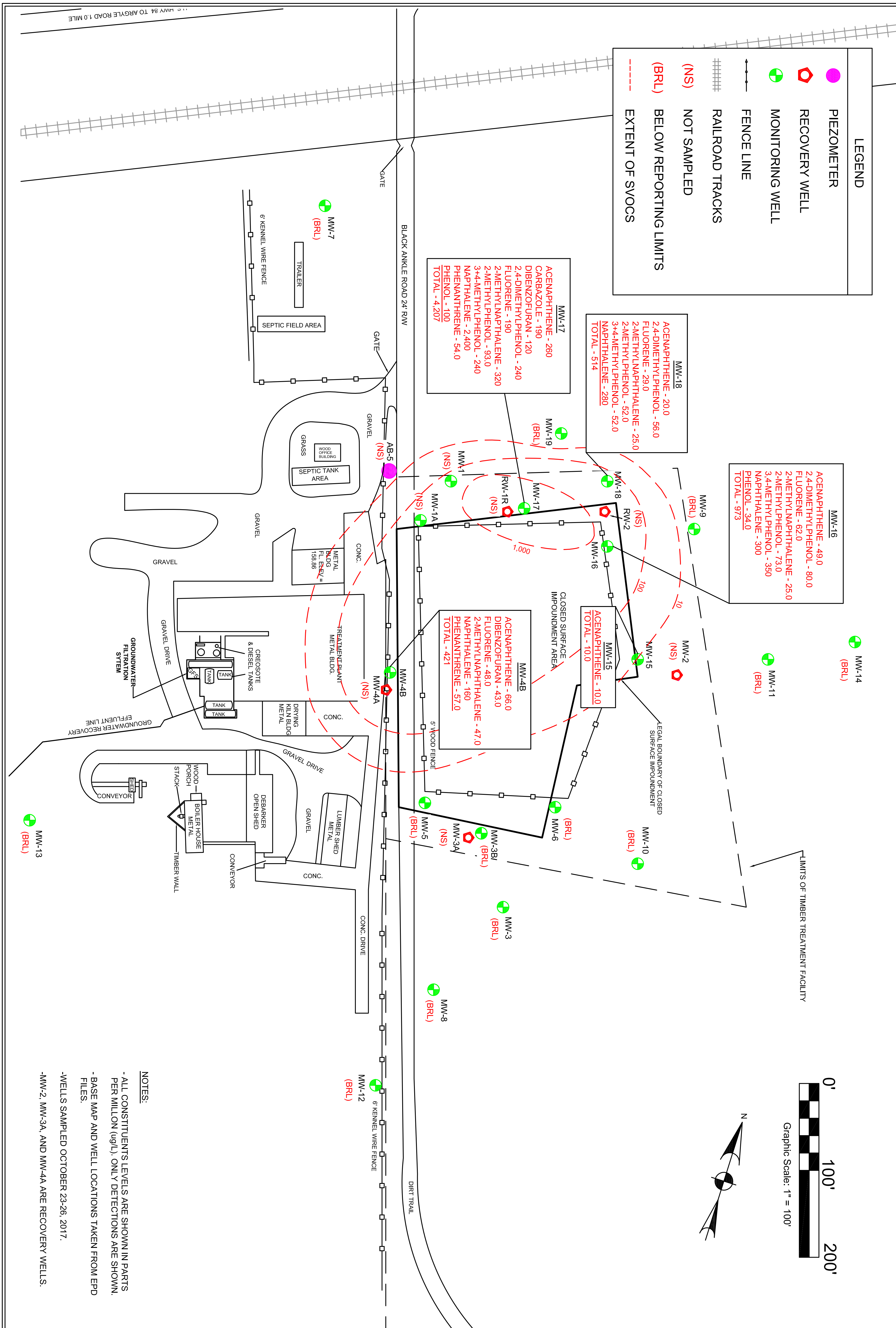


FIGURE NO

B14

MANOR TIMBER COMPANY
102 BLACK ANKLE ROAD
MANOR, GEORGIA

HORIZONTAL EXTENT OF SVOCs (OCTOBER 2017)

ENVIRORISK CONSULTANTS, INC.

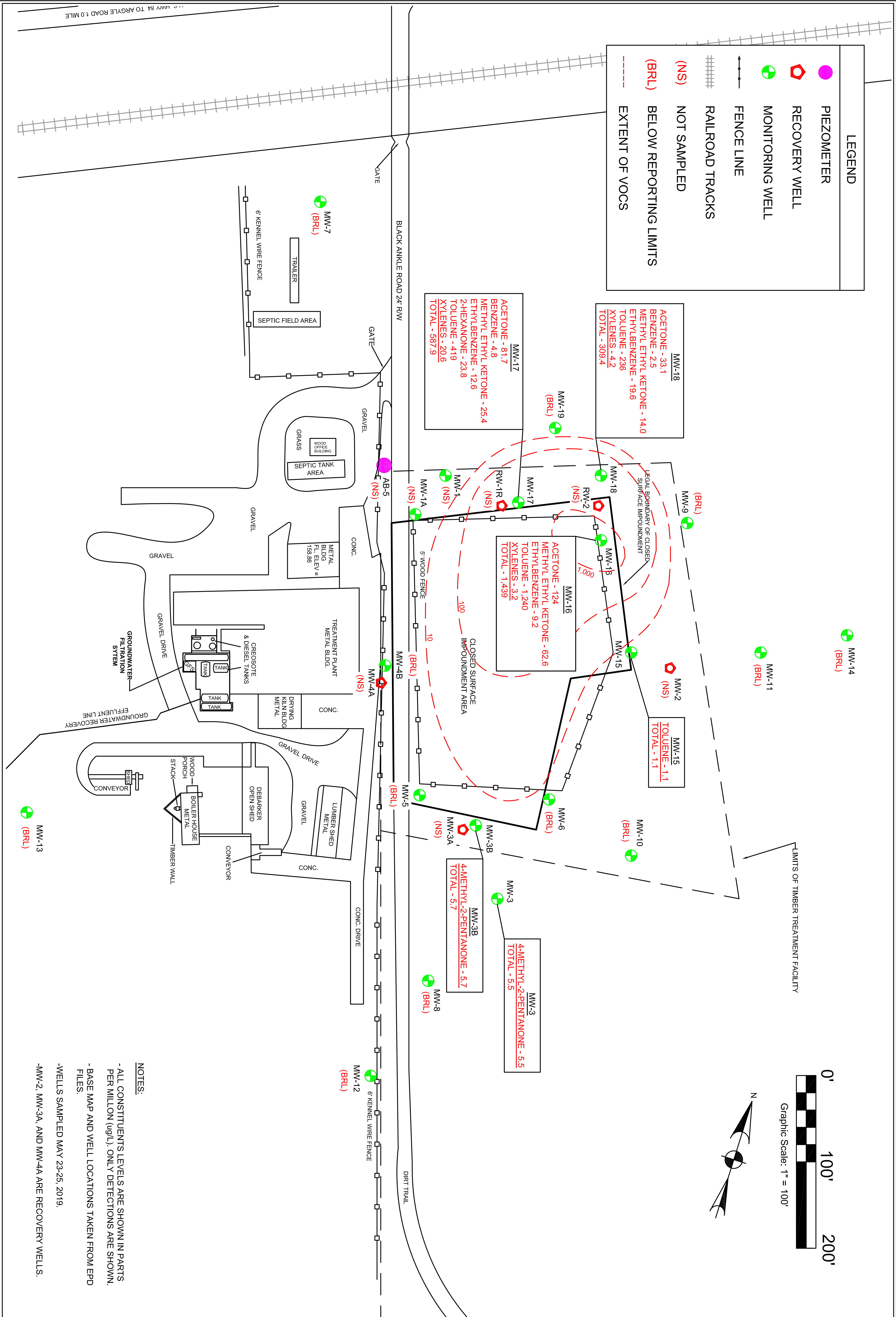


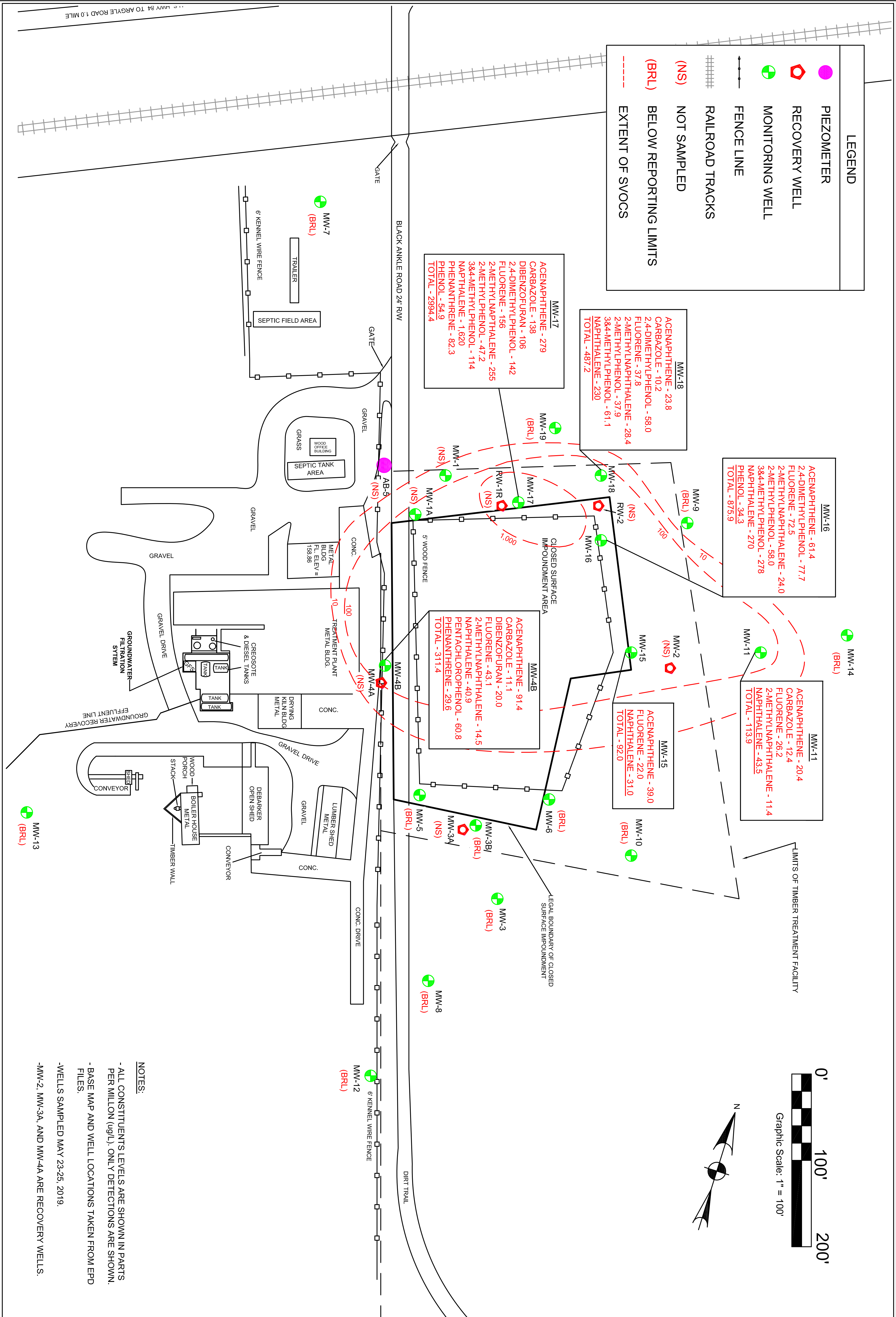
FIGURE NO

B15

MANOR TIMBER COMPANY
102 BLACK ANKLE ROAD
MANOR, GEORGIA

HORIZONTAL EXTENT OF VOCs (MAY 2019)

ENVIRORISK CONSULTANTS, INC.



NOTES:

- ALL CONSTITUENTS LEVELS ARE SHOWN IN PARTS PER MILLION (ug/L). ONLY DETECTIONS ARE SHOWN.
- BASE MAP AND WELL LOCATIONS TAKEN FROM EPD FILES.
- WELLS SAMPLED MAY 23-25, 2019.
- MW-2, MW-3A, AND MW-4A ARE RECOVERY WELLS.

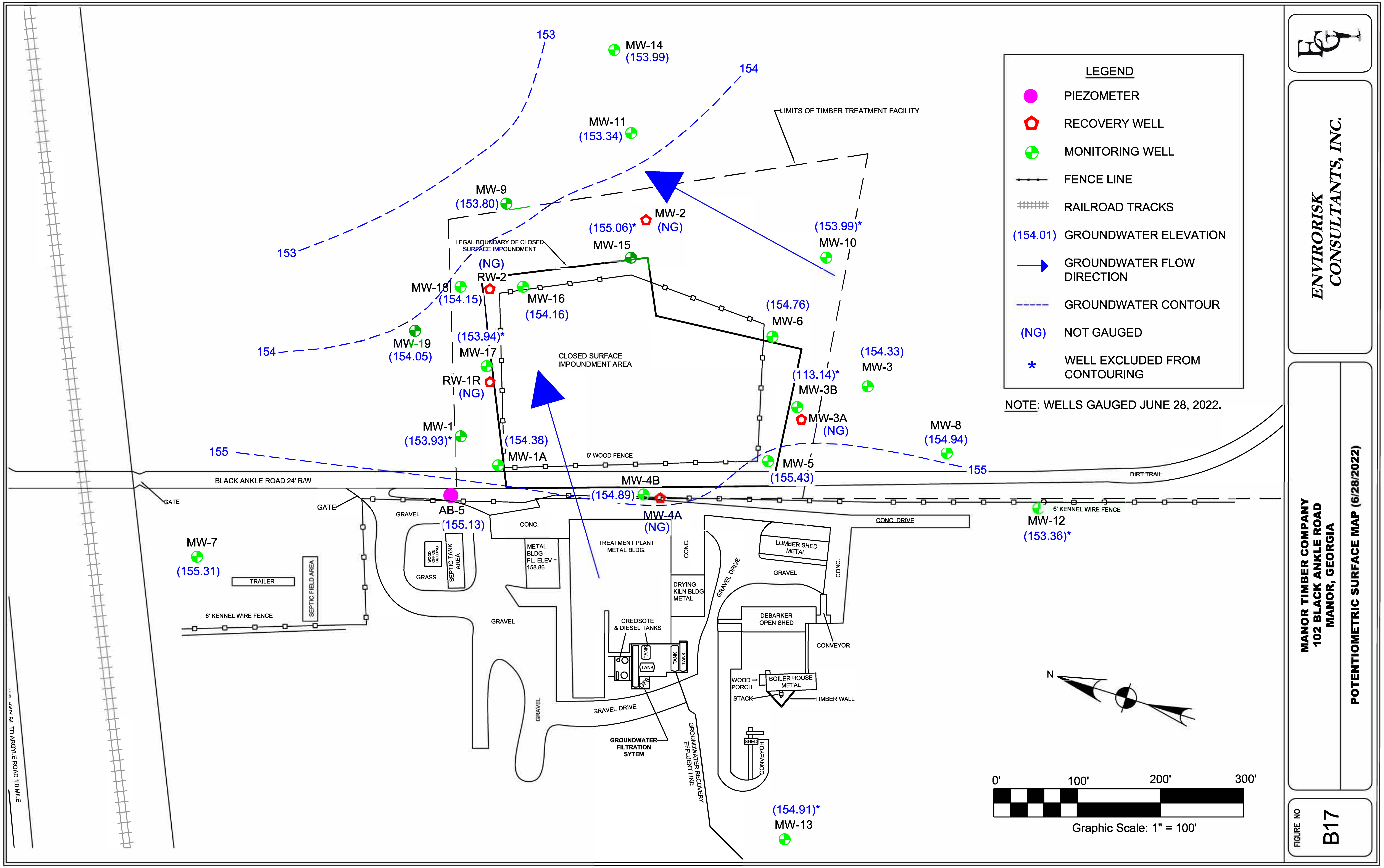
FIGURE NO

B16

MANOR TIMBER COMPANY
102 BLACK ANKLE ROAD
MANOR, GEORGIA

HORIZONTAL EXTENT OF SVOCs (MAY 2019)

ENVIRORISK CONSULTANTS, INC.


LEGEND
PIEZOMETER
RECOVERY WELL
MONITORING WELL
FENCE LINE
RAILROAD TRACKS
(154.01) GROUNDWATER ELEVATION
GROUNDWATER FLOW DIRECTION
GROUNDWATER CONTOUR
(NG) NOT GAUGED
* WELL EXCLUDED FROM CONTOURING
NOTE: WELLS GAUGED JUNE 28, 2022.
MW-14 (153.99)
MW-11 (153.34)
MW-9 (153.80)
MW-2 (155.06)* (NG)
MW-10 (153.99)*
MW-15
MW-18 (154.15)
RW-2 (NG)
MW-16 (154.16)
MW-6 (154.76)
MW-19 (154.05)
MW-17 (153.94)*
RW-1R (NG)
MW-3 (154.33)
MW-3B (113.14)*
MW-3A (NG)
MW-1 (153.93)*
MW-1A (154.38)
MW-8 (154.94)
MW-5 (155.43)
MW-4B (154.89)
MW-4A (NG)
AB-5 (155.13)
MW-12 (153.36)*
MW-7 (155.31)
MW-13 (154.91)*
153
154
155
LIMITS OF TIMBER TREATMENT FACILITY
LEGAL BOUNDARY OF CLOSED SURFACE IMPOUNDMENT
CLOSED SURFACE IMPOUNDMENT AREA
5' WOOD FENCE
BLACK ANKLE ROAD 24' R/W
DIRT TRAIL
GATE
GRAVEL
CONC.
METAL BLDG FL. ELEV = 158.86
TREATMENT PLANT METAL BLDG.
SEPTIC TANK AREA
GRASS
TRAILER
SEPTIC FIELD AREA
6' KENNEL WIRE FENCE
DRYING KILN BLDG METAL
CREOSOTE & DIESEL TANKS
TANK
GRAVEL DRIVE
GROUNDWATER FILTRATION SYTEM
GROUNDWATER RECOVERY EFFLUENT LINE
LUMBER SHED METAL
CONC. DRIVE
DEBARKER OPEN SHED
CONVEYOR
WOOD PORCH
BOILER HOUSE METAL
STACK
TIMBER WALL
SHED
HWY 84 TO ARGYLE ROAD 1.0 MILE
N
0' 100' 200' 300'
Graphic Scale: 1" = 100'
ENVIRORISK CONSULTANTS, INC.
MANOR TIMBER COMPANY
102 BLACK ANKLE ROAD
MANOR, GEORGIA
POTENTIOMETRIC SURFACE MAP (6/28/2022)
FIGURE NO
B17

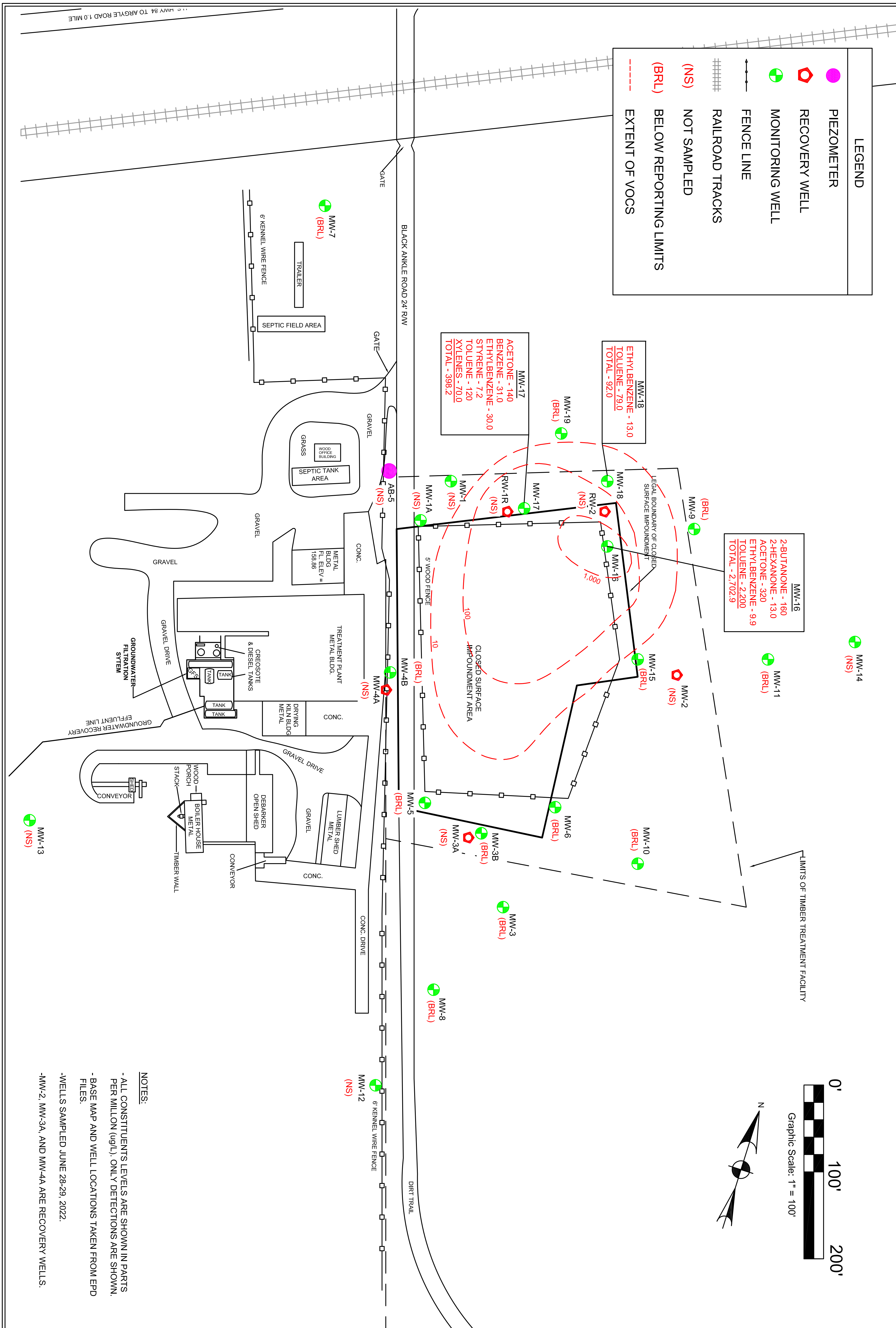


FIGURE NO

B18

MANOR TIMBER COMPANY
102 BLACK ANKLE ROAD
MANOR, GEORGIA

HORIZONTAL EXTENT OF VOCs (JUNE 2022)

ENVIRORISK CONSULTANTS, INC.

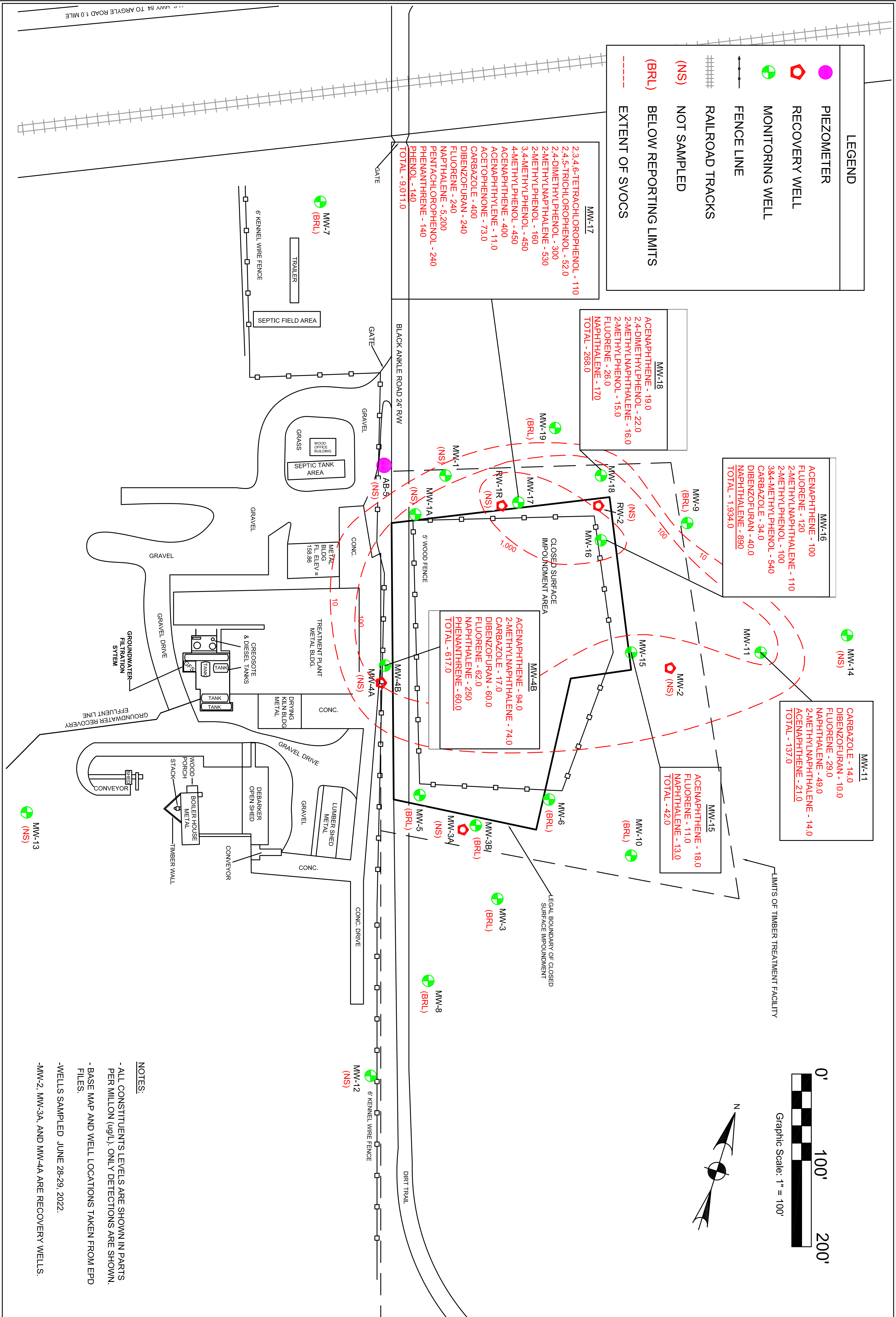


FIGURE NO

B19

MANOR TIMBER COMPANY
102 BLACK ANKLE ROAD
MANOR, GEORGIA

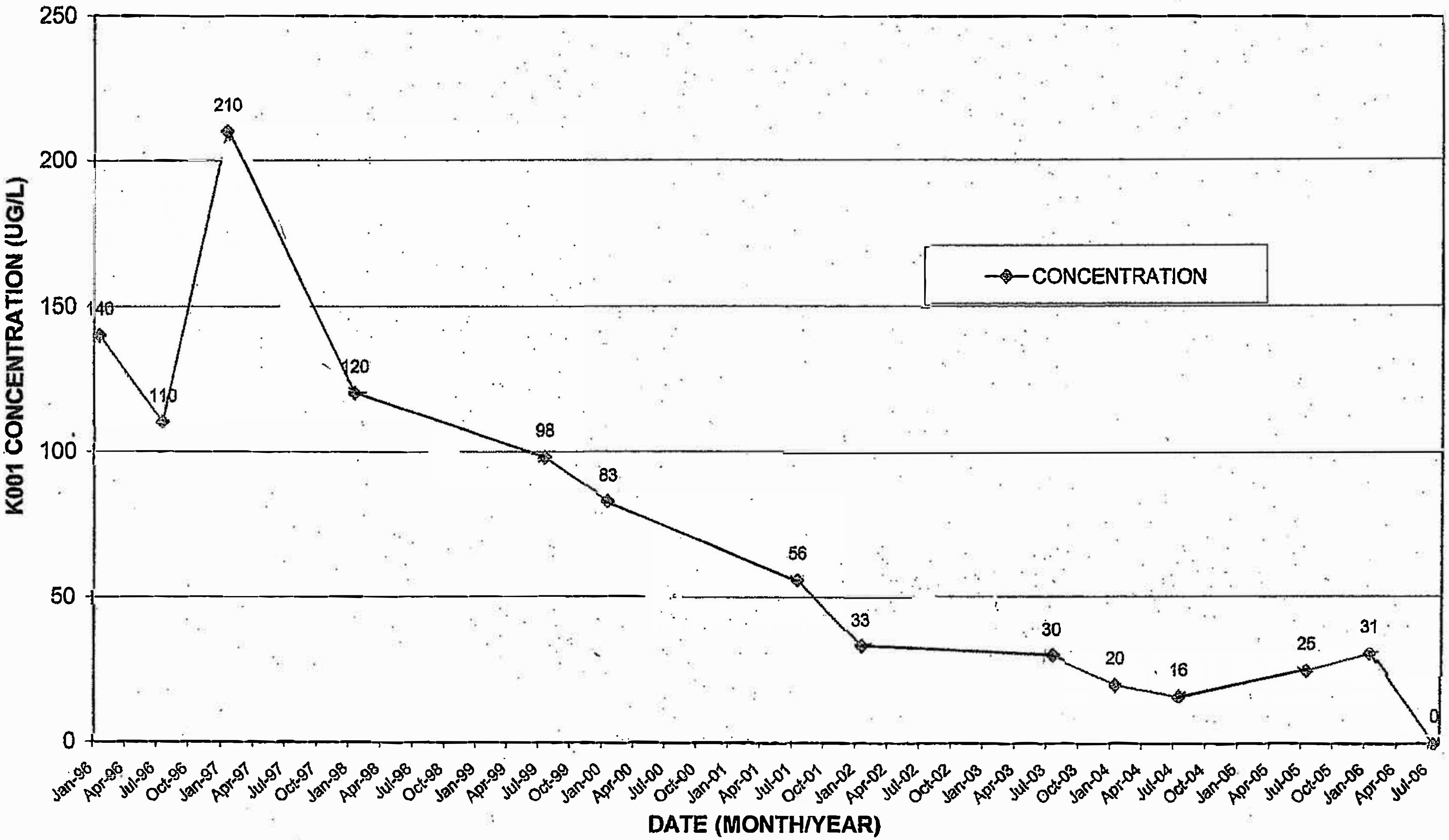
HORIZONTAL EXTENT OF SVOCs (JUNE 2022)

ENVIRORISK CONSULTANTS, INC.

MANOR TIMBER COMPANY

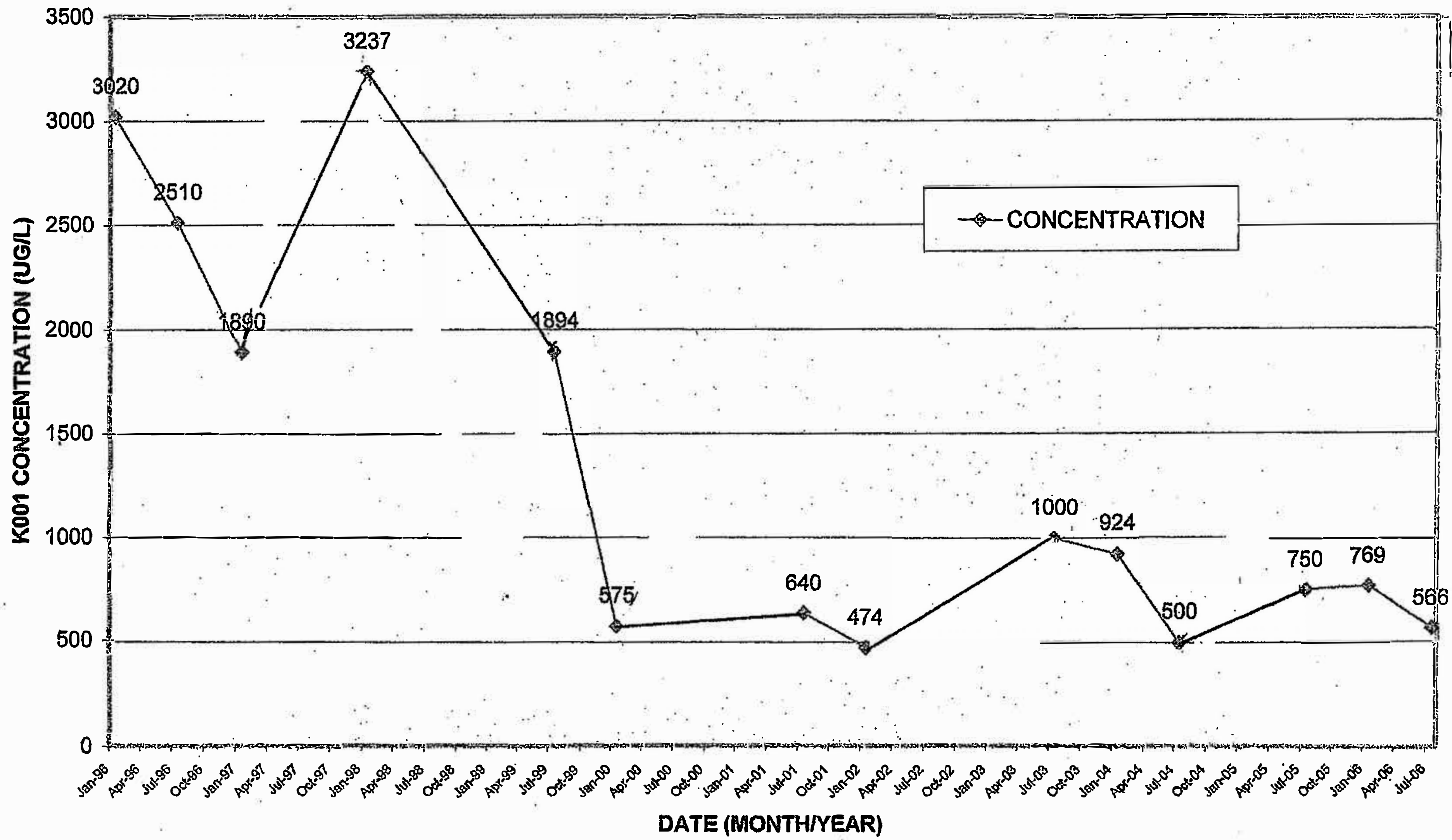
GRAPH 1

KOO1 CONCENTRATIONS (UG/L) VS. TIME (MONTH/YEAR)
MW-3 (JANUARY 1996 THROUGH JULY 2006)



MANOR TIMBER COMPANY

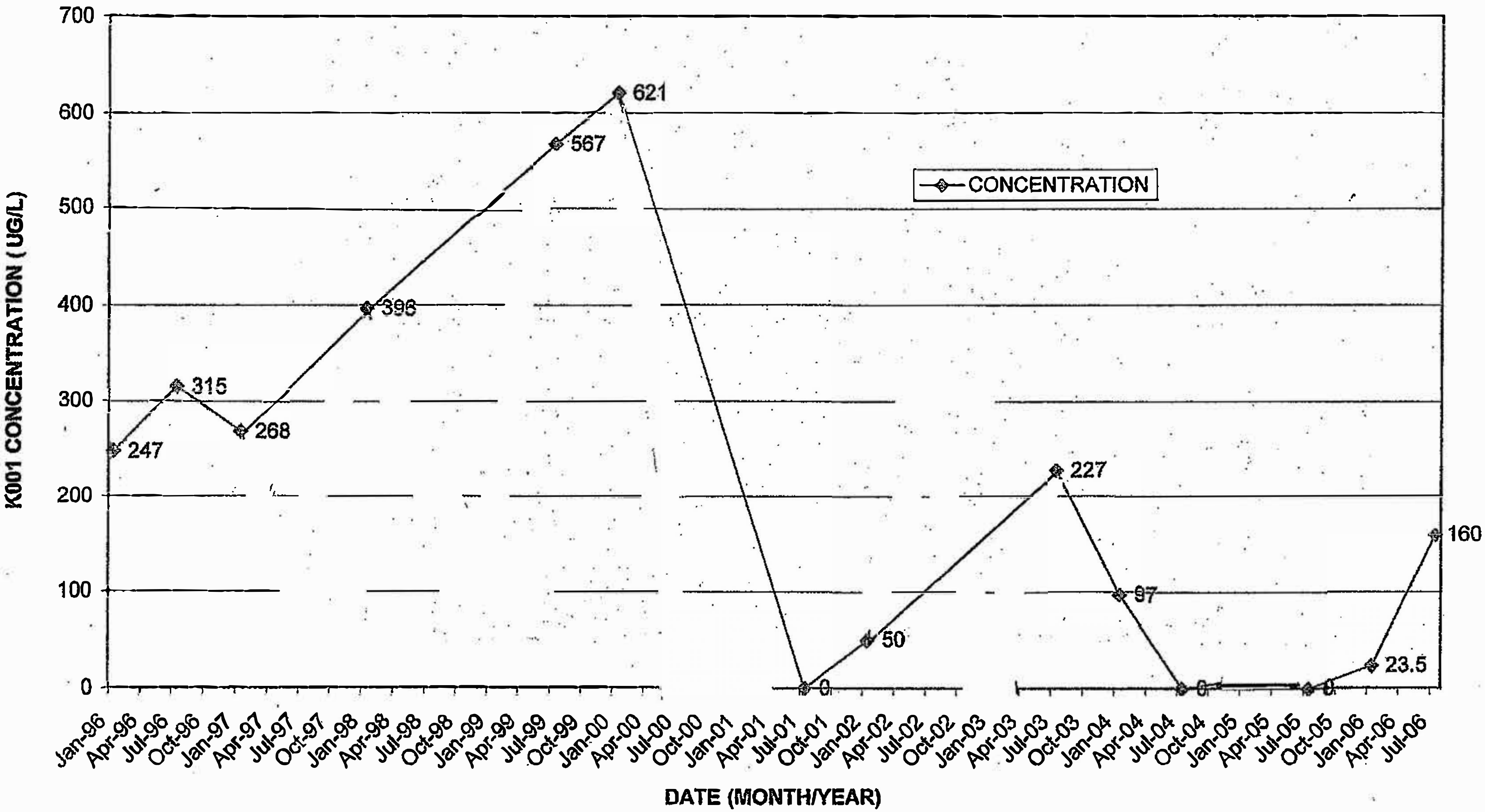
GRAPH 2
KOO1 CONCENTRATIONS (UG/L) VS. TIME (MONTH/YEAR)
MW-4B (JUNE 1996 THROUGH JULY 2006)



MANOR TIMBER COMPANY

GRAPH 3

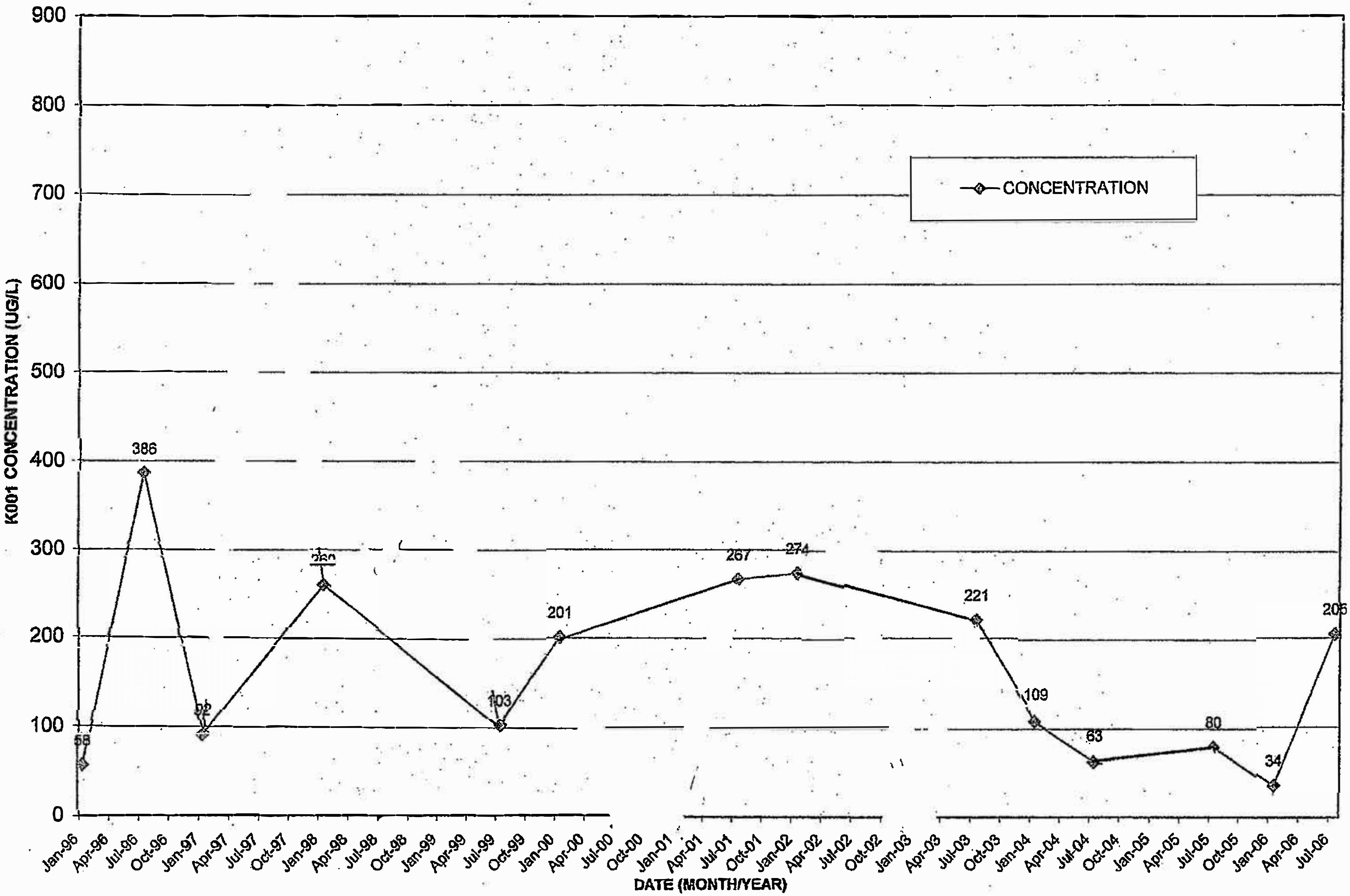
KOO1 CONCENTRATIONS (UG/L) VS. TIME (MONTH/YEAR)
MW-11 (JANUARY 1996 THROUGH JULY 2006)



MANOR TIM(R COMPANY

GRAPH 4

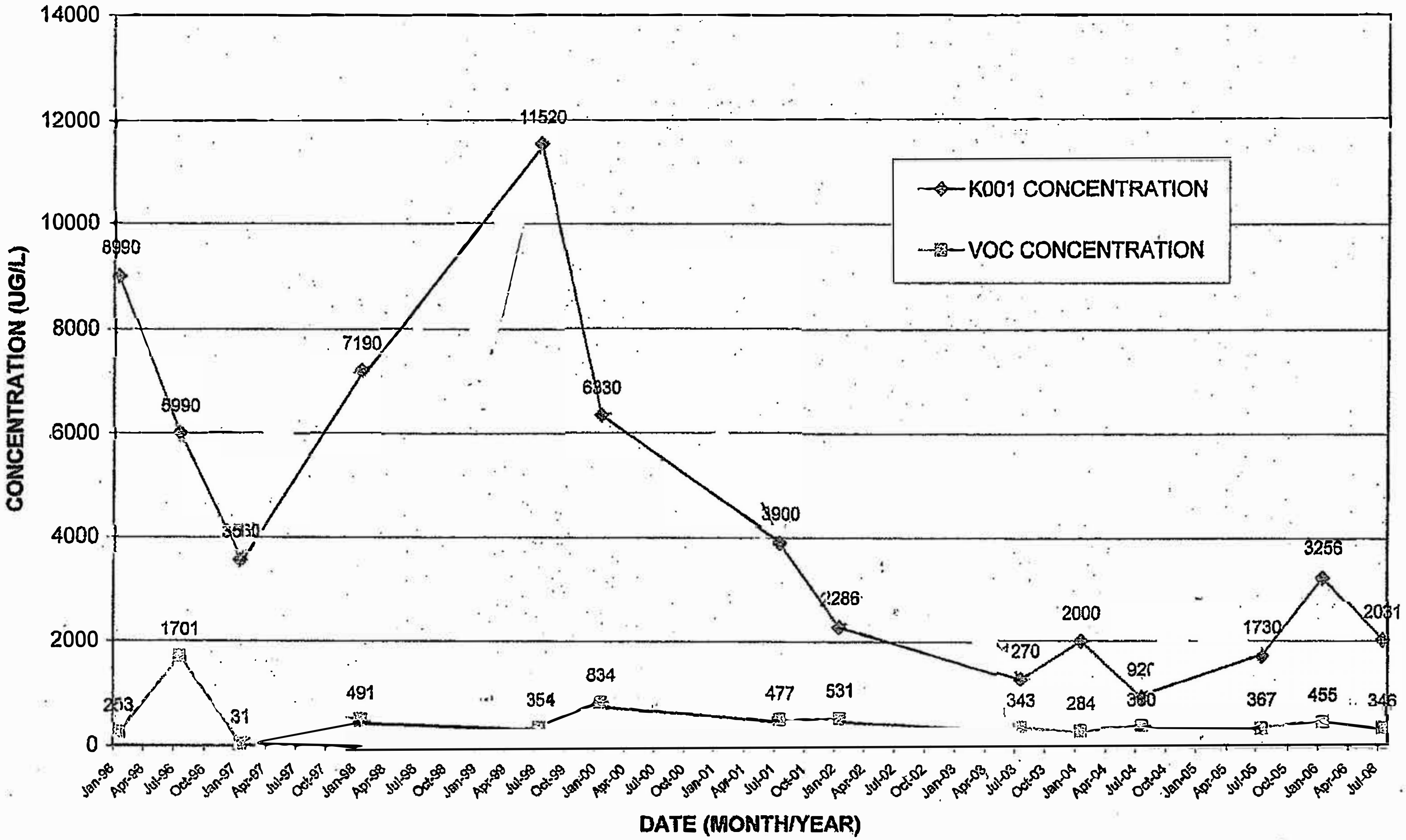
KOO1 CONCENTRATIONS (UG/L) VS. TIME (MONTH/YEAR)
MW-15 (JANUARY 1996 THROUGH JULY 2006)



MANOR TIMBER COMPANY

GRAPH 5

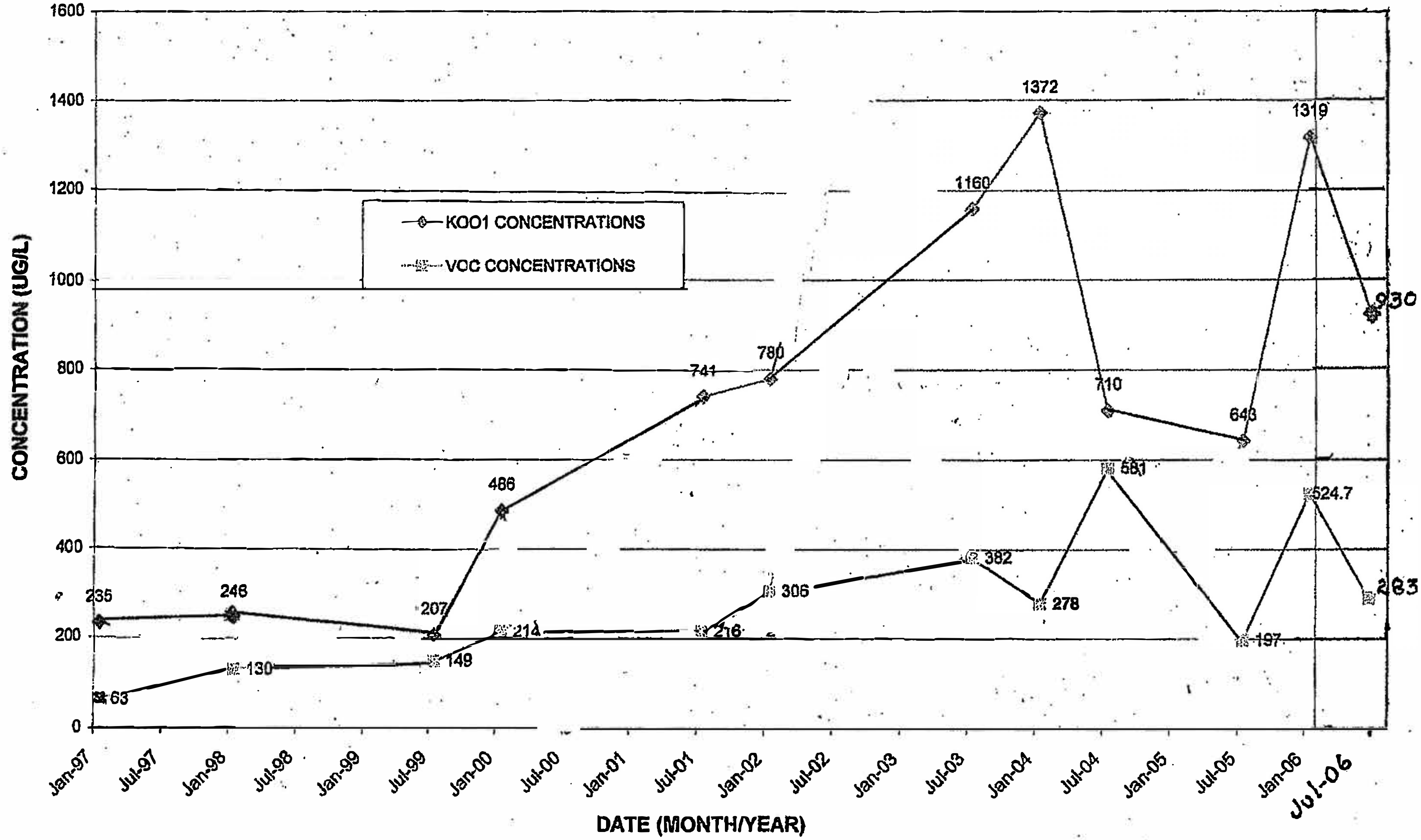
KOO1 AND VOC CONCENTRATIONS (UG/L) VS. TIME (MONTH/YEAR)
MW-17 (JANUARY 1996 THROUGH JULY 2006)

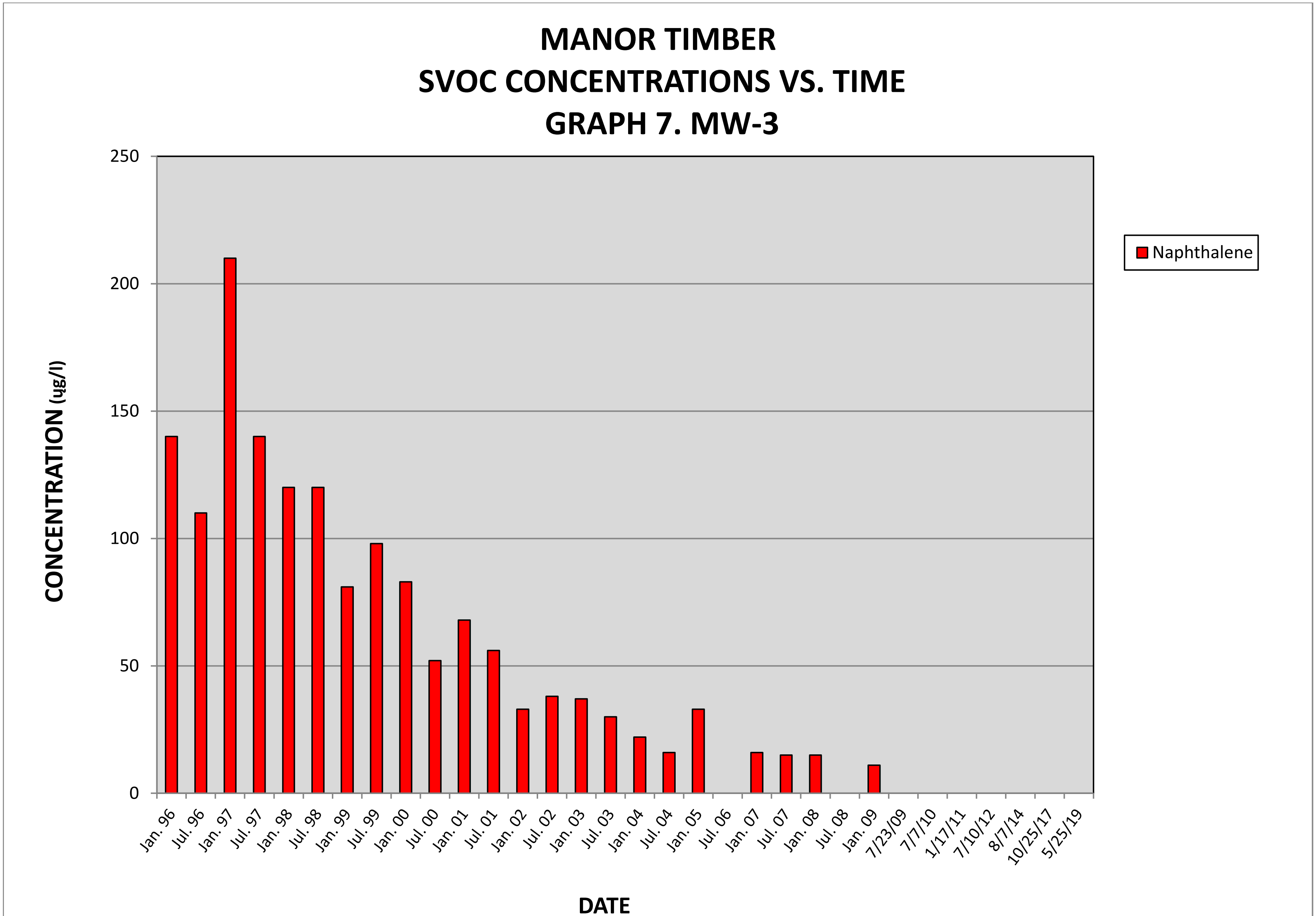


MANOR TIMBER COMPANY

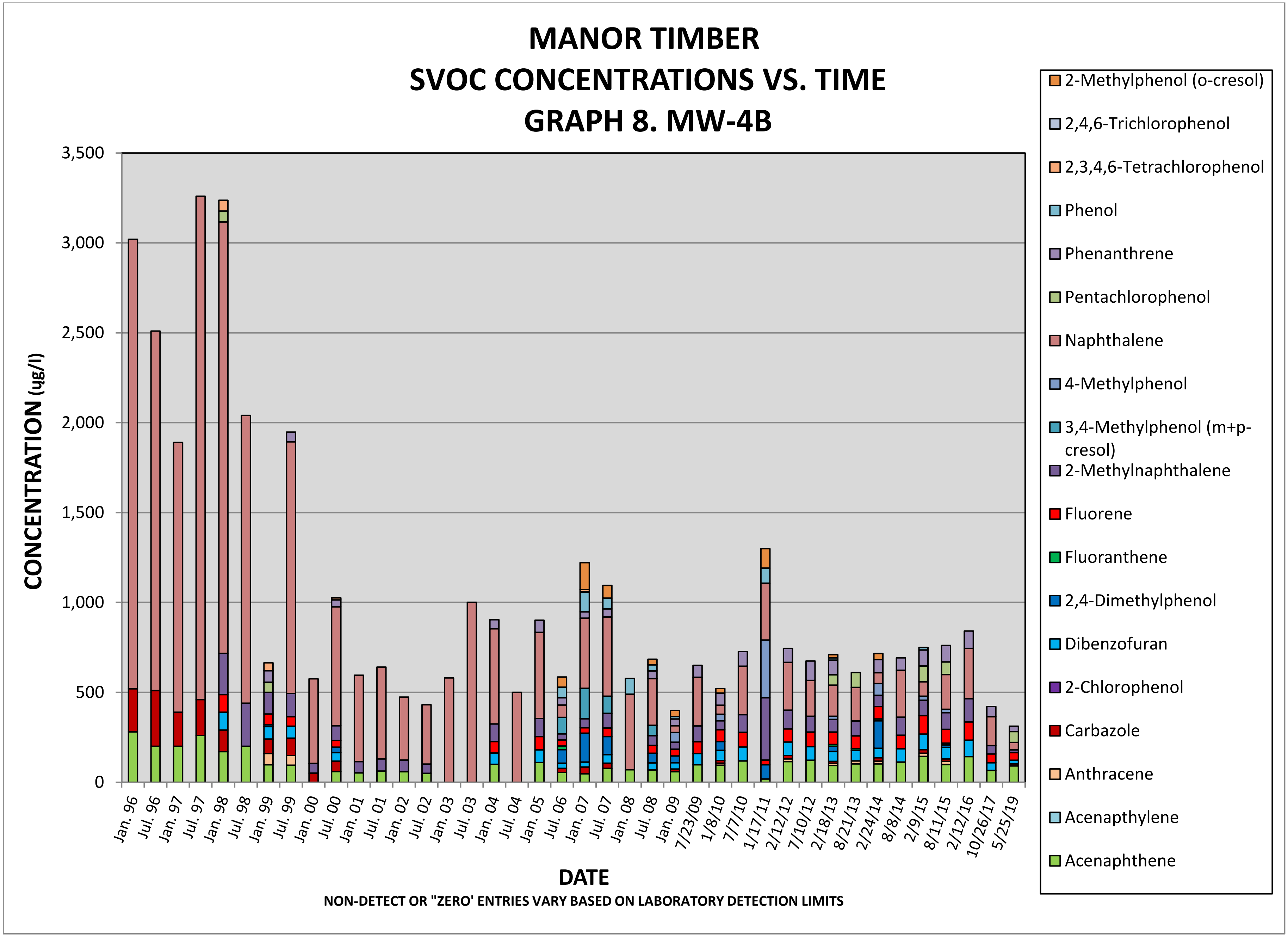
GRAPH 6

K001/VOC CONCENTRATIONS (UG/L) VS. TIME (MONTH/YEAR)
MW18 (JANUARY 1997 THROUGH JANUARY 2006)

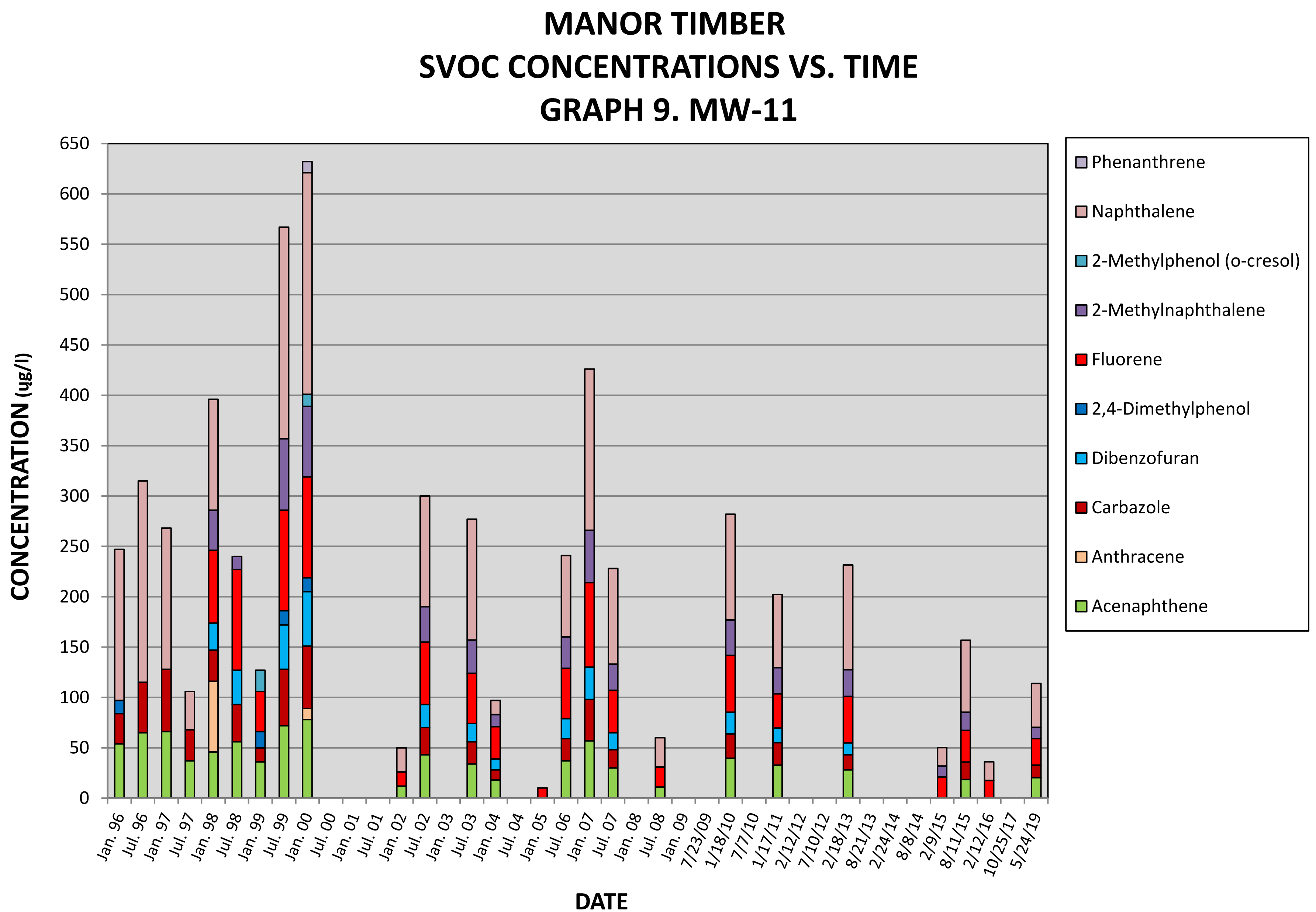




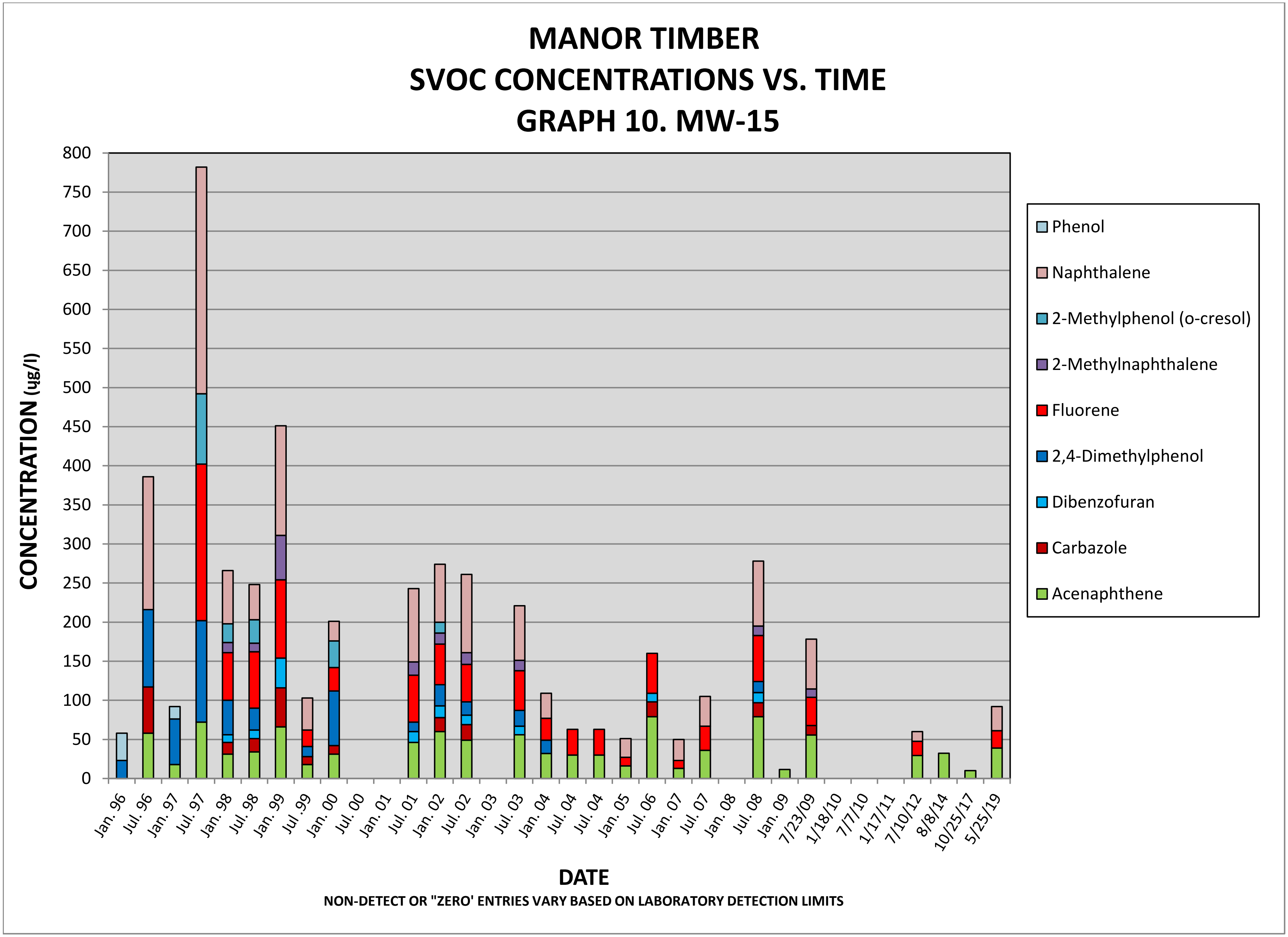
NON-DETECT OR "ZERO' ENTRIES VARY BASED ON LABORATORY DETECTION LIMITS



MANOR TIMBER
SVOC CONCENTRATIONS VS. TIME
GRAPH 8. MW-4B
CONCENTRATION (ug/l)
3,500
3,000
2,500
2,000
1,500
1,000
500
0
Jan. 96
Jul. 96
Jan. 97
Jul. 97
Jan. 98
Jul. 98
Jan. 99
Jul. 99
Jan. 00
Jul. 00
Jan. 01
Jul. 01
Jan. 02
Jul. 02
Jan. 03
Jul. 03
Jan. 04
Jul. 04
Jan. 05
Jul. 06
Jan. 07
Jul. 07
Jan. 08
Jul. 08
Jan. 09
7/23/09
1/8/10
7/7/10
1/17/11
2/12/12
7/10/12
2/18/13
8/21/13
2/24/14
8/8/14
2/9/15
8/11/15
2/12/16
10/26/17
5/25/19
DATE
NON-DETECT OR "ZERO' ENTRIES VARY BASED ON LABORATORY DETECTION LIMITS
2-Methylphenol (o-cresol)
2,4,6-Trichlorophenol
2,3,4,6-Tetrachlorophenol
Phenol
Phenanthrene
Pentachlorophenol
Naphthalene
4-Methylphenol
3,4-Methylphenol (m+p-cresol)
2-Methylnaphthalene
Fluorene
Fluoranthene
2,4-Dimethylphenol
Dibenzofuran
2-Chlorophenol
Carbazole
Anthracene
Acenapthylene
Acenaphthene

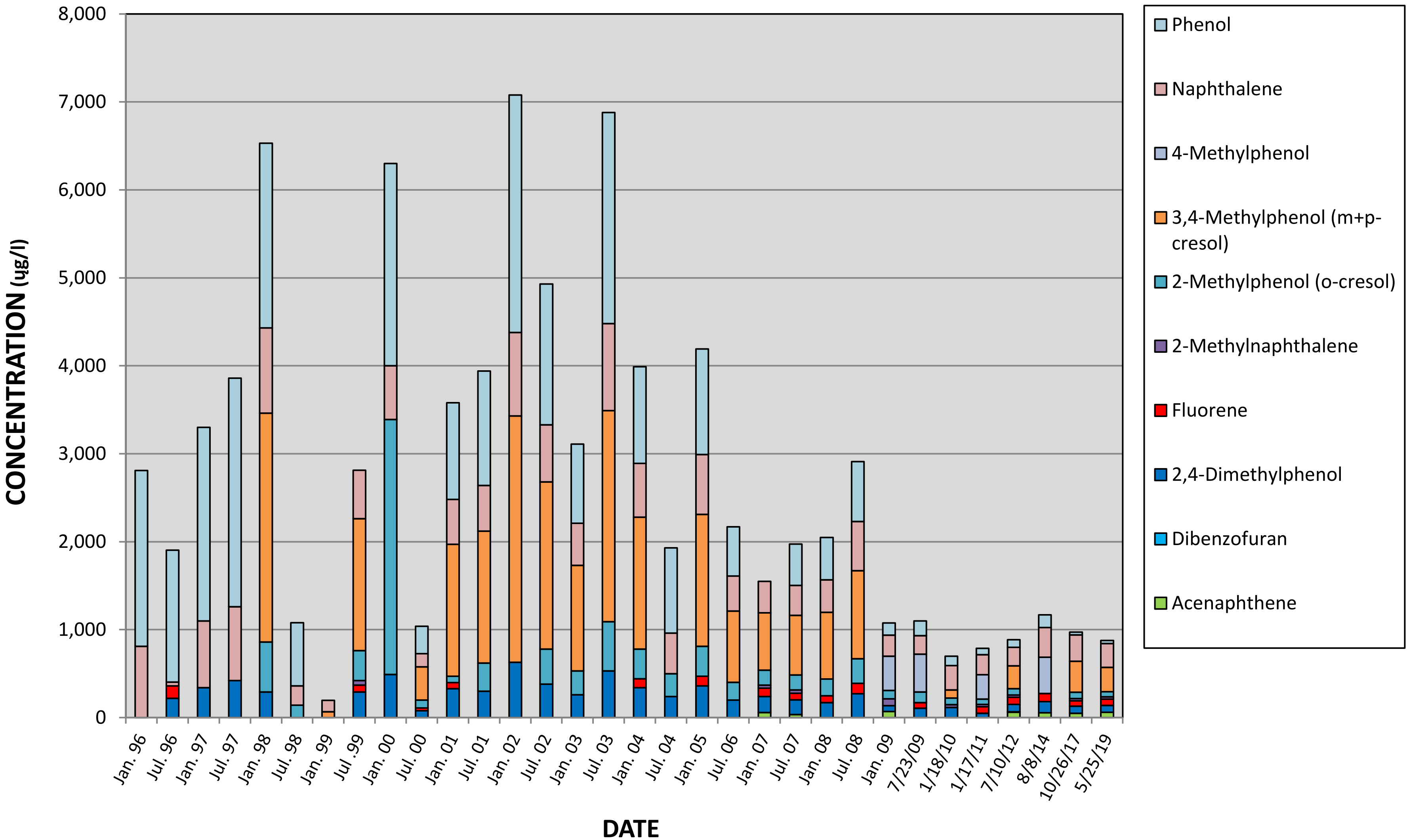


NON-DETECT OR "ZERO' ENTRIES VARY BASED ON LABORATORY DETECTION LIMITS

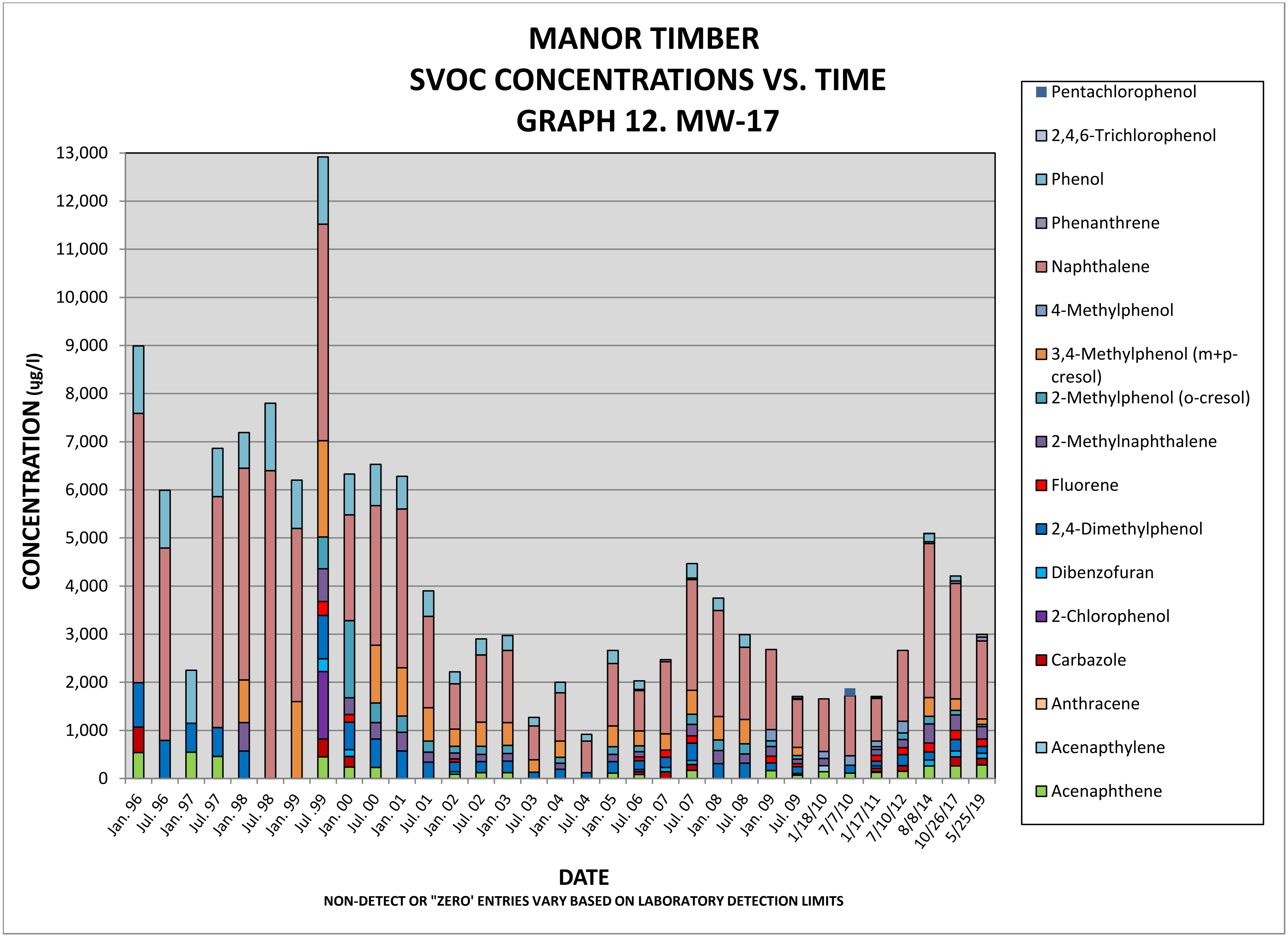


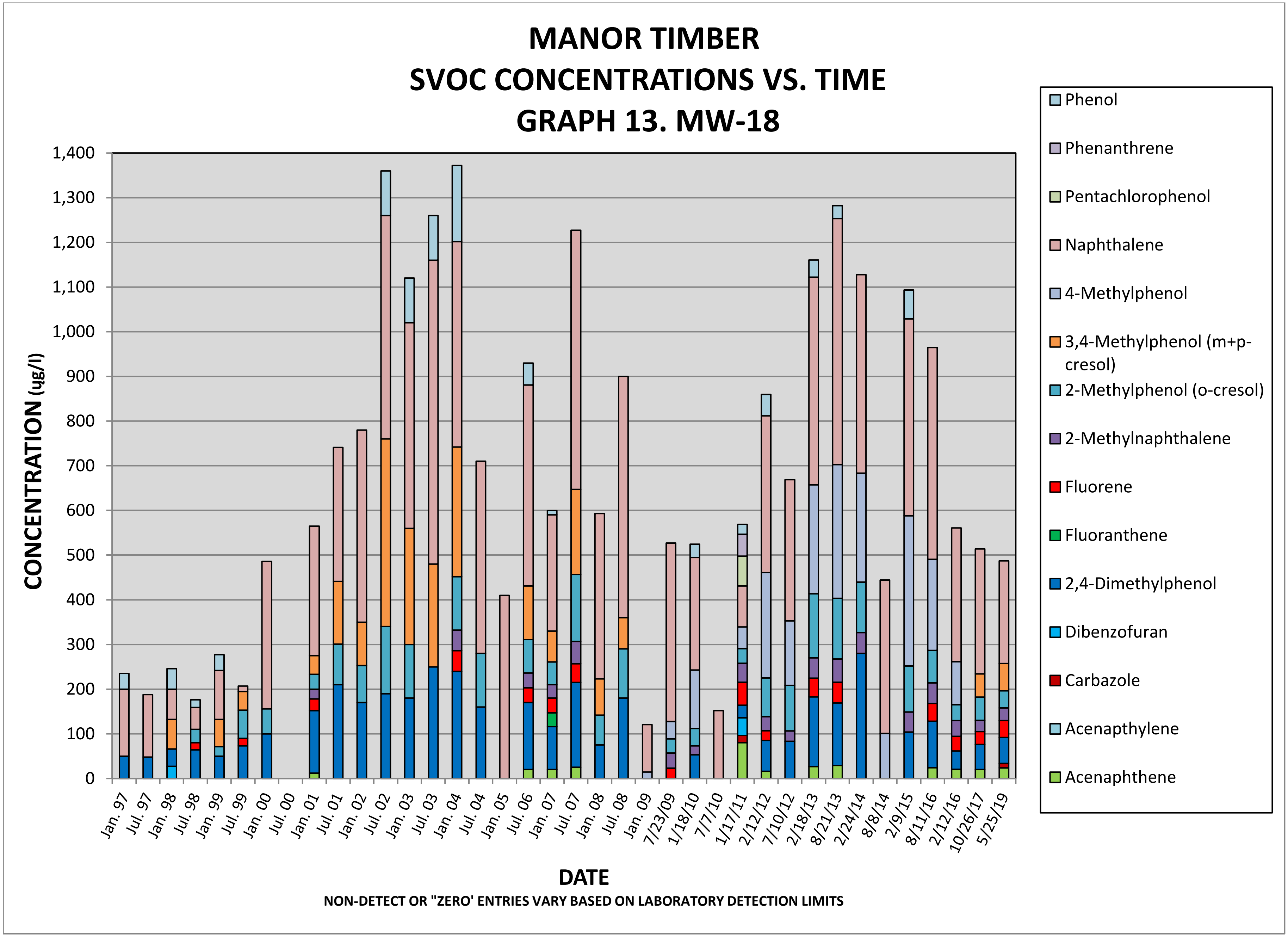
MANOR TIMBER
SVOC CONCENTRATIONS VS. TIME
GRAPH 10. MW-15
CONCENTRATION (ug/l)
800
750
700
650
600
550
500
450
400
350
300
250
200
150
100
50
0
Phenol
Naphthalene
2-Methylphenol (o-cresol)
2-Methylnaphthalene
Fluorene
2,4-Dimethylphenol
Dibenzofuran
Carbazole
Acenaphthene
Jan. 96
Jul. 96
Jan. 97
Jul. 97
Jan. 98
Jul. 98
Jan. 99
Jul. 99
Jan. 00
Jul. 00
Jan. 01
Jul. 01
Jan. 02
Jul. 02
Jan. 03
Jul. 03
Jan. 04
Jul. 04
Jul. 04
Jan. 05
Jul. 06
Jan. 07
Jul. 07
Jan. 08
Jul. 08
Jan. 09
7/23/09
1/18/10
7/7/10
1/17/11
7/10/12
8/8/14
10/25/17
5/25/19
DATE
NON-DETECT OR "ZERO' ENTRIES VARY BASED ON LABORATORY DETECTION LIMITS

MANOR TIMBER
SVOC CONCENTRATIONS VS. TIME
GRAPH 11. MW-16



NON-DETECT OR "ZERO' ENTRIES VARY BASED ON LABORATORY DETECTION LIMITS


MANOR TIMBER
SVOC CONCENTRATIONS VS. TIME
GRAPH 12. MW-17
CONCENTRATION (μg/l)
13,000
12,000
11,000
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
Jan. 96
Jul. 96
Jan. 97
Jul. 97
Jan. 98
Jul. 98
Jan. 99
Jul. 99
Jan. 00
Jul. 00
Jan. 01
Jul. 01
Jan. 02
Jul. 02
Jan. 03
Jul. 03
Jan. 04
Jul. 04
Jan. 05
Jul. 06
Jan. 07
Jul. 07
Jan. 08
Jul. 08
Jan. 09
Jul. 09
1/18/10
7/7/10
1/17/11
7/10/12
8/8/14
10/26/17
5/25/19
DATE
NON-DETECT OR "ZERO' ENTRIES VARY BASED ON LABORATORY DETECTION LIMITS
Pentachlorophenol
2,4,6-Trichlorophenol
Phenol
Phenanthrene
Naphthalene
4-Methylphenol
3,4-Methylphenol (m+p-cresol)
2-Methylphenol (o-cresol)
2-Methylnaphthalene
Fluorene
2,4-Dimethylphenol
Dibenzofuran
2-Chlorophenol
Carbazole
Anthracene
Acenapthylene
Acenaphthene



MANOR TIMBER
SVOC CONCENTRATIONS VS. TIME
GRAPH 13. MW-18
CONCENTRATION (ug/l)
1,400
1,300
1,200
1,100
1,000
900
800
700
600
500
400
300
200
100
0
Jan. 97
Jul. 97
Jan. 98
Jul. 98
Jan. 99
Jul. 99
Jan. 00
Jul. 00
Jan. 01
Jul. 01
Jan. 02
Jul. 02
Jan. 03
Jul. 03
Jan. 04
Jul. 04
Jan. 05
Jul. 06
Jan. 07
Jul. 07
Jan. 08
Jul. 08
Jan. 09
7/23/09
1/18/10
7/7/10
1/17/11
2/12/12
7/10/12
2/18/13
8/21/13
2/24/14
8/8/14
2/9/15
8/11/16
2/12/16
10/26/17
5/25/19
DATE
NON-DETECT OR "ZERO' ENTRIES VARY BASED ON LABORATORY DETECTION LIMITS
Phenol
Phenanthrene
Pentachlorophenol
Naphthalene
4-Methylphenol
3,4-Methylphenol (m+p-cresol)
2-Methylphenol (o-cresol)
2-Methylnaphthalene
Fluorene
Fluoranthene
2,4-Dimethylphenol
Dibenzofuran
Carbazole
Acenapthylene
Acenaphthene

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Georgia State Plane East Zone (FIPS zone 1001). The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242** or visit its website at http://www.ngs.noaa.gov/.

Base map information shown on this FIRM was derived from National Agriculture Imagery Program (NAIP) at a scale of 1:20,000 from photography dated 2007 or later.

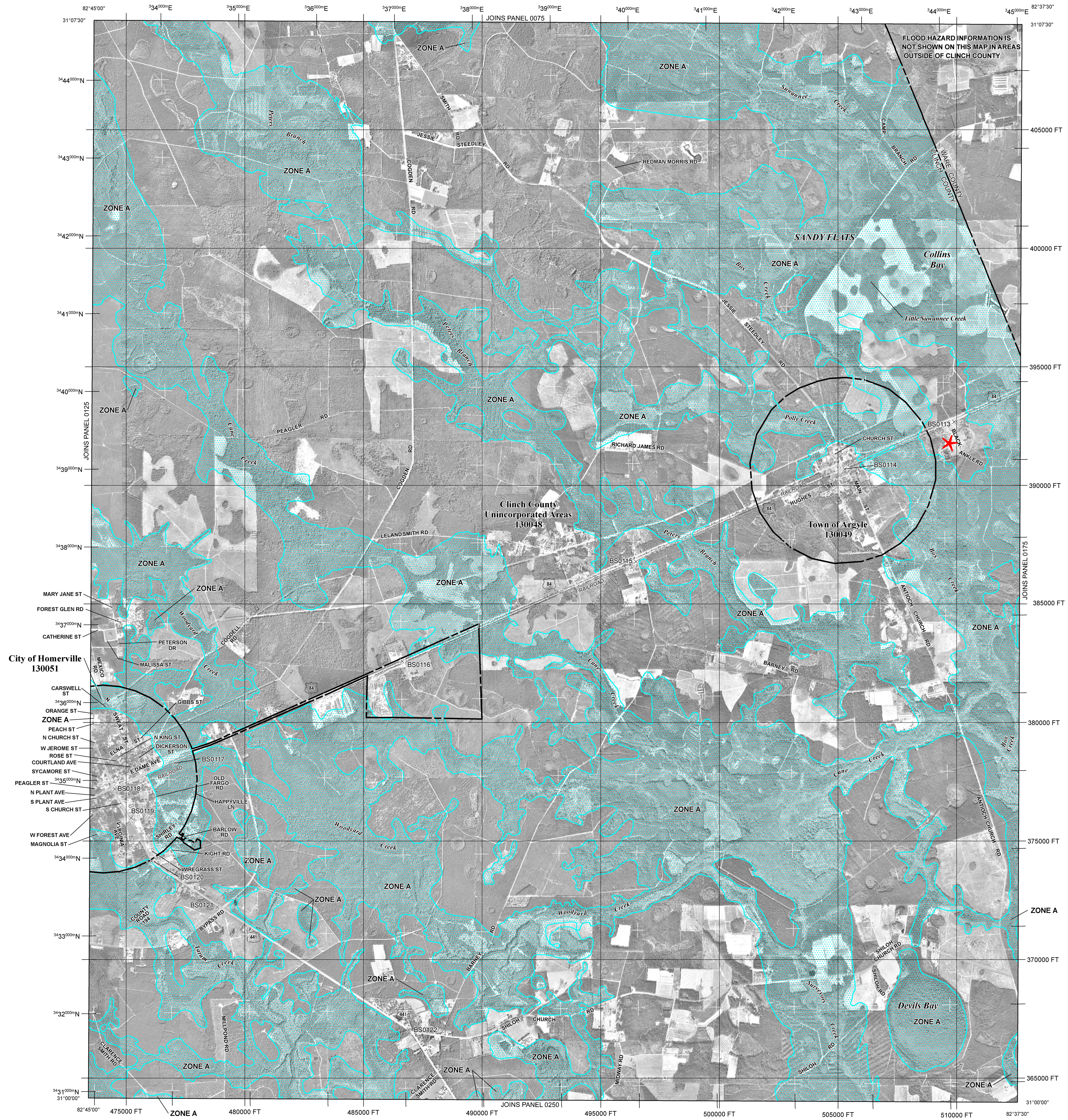
The **profile base lines** depicted on this map represent the hydraulic modeling baselines that match the flood profiles in the FIS report. As a result of improved topographic data, the profile base line, in some cases, may deviate significantly from the channel centerline or appear outside the SFHA.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, *a Flood Insurance Study report,* and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at http://www.msc.fema.gov/.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/business/nfip/.



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Areas to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

1% annual chance floodplain boundary
0.2% annual chance floodplain boundary
Floodway boundary
Zone D boundary
CBRS and OPA boundary
Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths, or flood velocities

513	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988

A — A	Cross section line
23 - - - 23	Transect line
97°07'30", 32°22'30"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
4275000mE	1000-meter Universal Transverse Mercator grid ticks, zone 17
6000000 FT	5000-foot grid values: Georgia State Plane coordinate system, East Zone (FIPSZONE = 1001), Transverse Mercator projection
DX5510 ×	Bench mark (see explanation in Notes to Users section of this FIRM panel)
● M1.5	River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
SEPTEMBER 11, 2009

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 2000'

1,000 0 1,000 2,000 3,000 4,000 FEET
600 0 600 1,200 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0150D

FIRM

FLOOD INSURANCE RATE MAP

CLINCH COUNTY, GEORGIA

AND INCORPORATED AREAS

PANEL 150 OF 575

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
ARGYLE, TOWN OF	130049	0150	D
CLINCH COUNTY	130048	0150	D
HOMERVILLE, CITY OF	130051	0150	D

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
13065C0150D

EFFECTIVE DATE
SEPTEMBER 11, 2009

Federal Emergency Management Agency

National Flood Hazard Layer FIRMette

FEMA

82°38'11"W 31°4'43"N

82°37'34"W 31°4'12"N

Feet

0 250 500 1,000 1,500 2,000

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS	Without Base Flood Elevation (BFE) *Zone A, V, A99*
	With BFE or Depth *Zone AE, AO, AH, VE, AR*
	Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD	0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
	Future Conditions 1% Annual Chance Flood Hazard *Zone X*
	Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
	Area with Flood Risk due to Levee *Zone D*
OTHER AREAS	NO SCREEN Area of Minimal Flood Hazard *Zone X*
	Effective LOMRs
	Area of Undetermined Flood Hazard *Zone D*
GENERAL STRUCTURES	Channel, Culvert, or Storm Sewer
	Levee, Dike, or Floodwall
OTHER FEATURES	B 20.2 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
	8 Coastal Transect
	513 Base Flood Elevation Line (BFE)
	Limit of Study
	Jurisdiction Boundary
	Coastal Transect Baseline
	Profile Baseline
	Hydrographic Feature
MAP PANELS	Digital Data Available
	No Digital Data Available
	Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 3/3/2023 at 1:10 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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Appendix B2

Post-Closure Care Cost Estimate

Manor Timber Company

Closed Surface Impoundment

for the year ending 2022

Annual Cost	
Groundwater Monitoring/sampling	
1. Sample collection	*2,898.00*
2. Laboratory Analyses	*8,925.00*
3. Other Direct Costs	*1,150.00*
Subtotal	*12,973.00*
Inspections (wells, final cover, site control)	
1. Labor	*2,650.00*
2. Misc. Materials	*1,325.00*
Subtotal	*3,975.00*
Maintenance (Wells, final cover, site control)	
1. Labor	*1,620.00*
2. Misc. Materials	*2,240.00*
Subtotal	*3,860.00*
Corrective Action Program	
1. Electricity	*4,390.00*
2. Replacement carbon filters	*3,130.00*
3. Disposal cost and used drums	*3,720.00*
4. Quarterly Analysis	*1,150.00*
5. Semi-annual reports	*5,100.00*
Subtotal	*17,490.00*
Annual Cost	*38,298.00*
10% Contingency	*3,829.80*
Total Annual Cost	*42,127.80*

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MANOR TIMBER COMPANY
FINANCIAL ASSURANCE TRUST AGREEMENT
102 BLACK ANKLE RD
MANOR GA 31550

BEGINNING SEPTEMBER 1, 2021 YOU MAY MAKE 6 DEBIT TRANSACTIONS FROM YOUR SAVINGS ACCOUNT IN A QUARTERLY CYCLE FREE OF CHARGE. ANY EXCESS WILL BE CHARGED $1.00 DEBIT ITEM CHARGE PER DEBIT TRANSACTION.

PRIMARY ACCT: 03 233100710 STATEMENT PERIOD: 12/27/2021 - 01/24/2022

SUMMARY:

	ACCOUNT NUMBER	PREVIOUS BALANCE	TOTAL DEBITS		TOTAL CREDITS	SERVICE CHARGES	ENDING BALANCE
DDA	233100710	437,007.59	.00	1	104.16	.00	437,111.75

MONEY MARKET 233100710

-- DEPOSITS AND MISCELLANEOUS TRANSACTIONS --

INTEREST PAID	104.16+	01/24

CURRENT INTEREST RATE	.3000 %
YEAR-TO-DATE INTEREST PAID	104.16
AVERAGE BALANCE	437,007.59

-- CHECKS --

NUMBER......AMOUNT...DATE NUMBER......AMOUNT...DATE NUMBER......AMOUNT...DATE

-- BALANCE INFORMATION --

DATE	BALANCE	DATE	BALANCE	DATE	BALANCE
12/26	437,007.59	01/24	437,111.75		

Appendix B3

Well Installation Description

The first two series of wells, MW-1 through MW-4 and MW-1A, MW-3A,
MW-4A, were installed by Paul Clawson from 1982 to 1984. The drilling and well installation procedures were described in reports which he prepared and are summarized following this section.

The subsequent well installation activities began in April 1991 by the installation of five observation wells, identified as AB-1 through AB-5 and terminated in November 2002 with the installation of RW-2. AB-1 was converted to MW-6. AB-2 was closed in accordance with the Georgia Water Well Standards Act, as described below. AB-3 was converted to MW-16. AB-4 was converted to MW-15. AB-5 is currently in-use as a piezometer.

AB2 was abandoned on 11 Nov 92 by tremie grouting with a bentonite cement slurry to 1 foot below ground level. The upper PVC casing was then removed and the hole filled to ground surface with "Holeplug" bentonite chips.

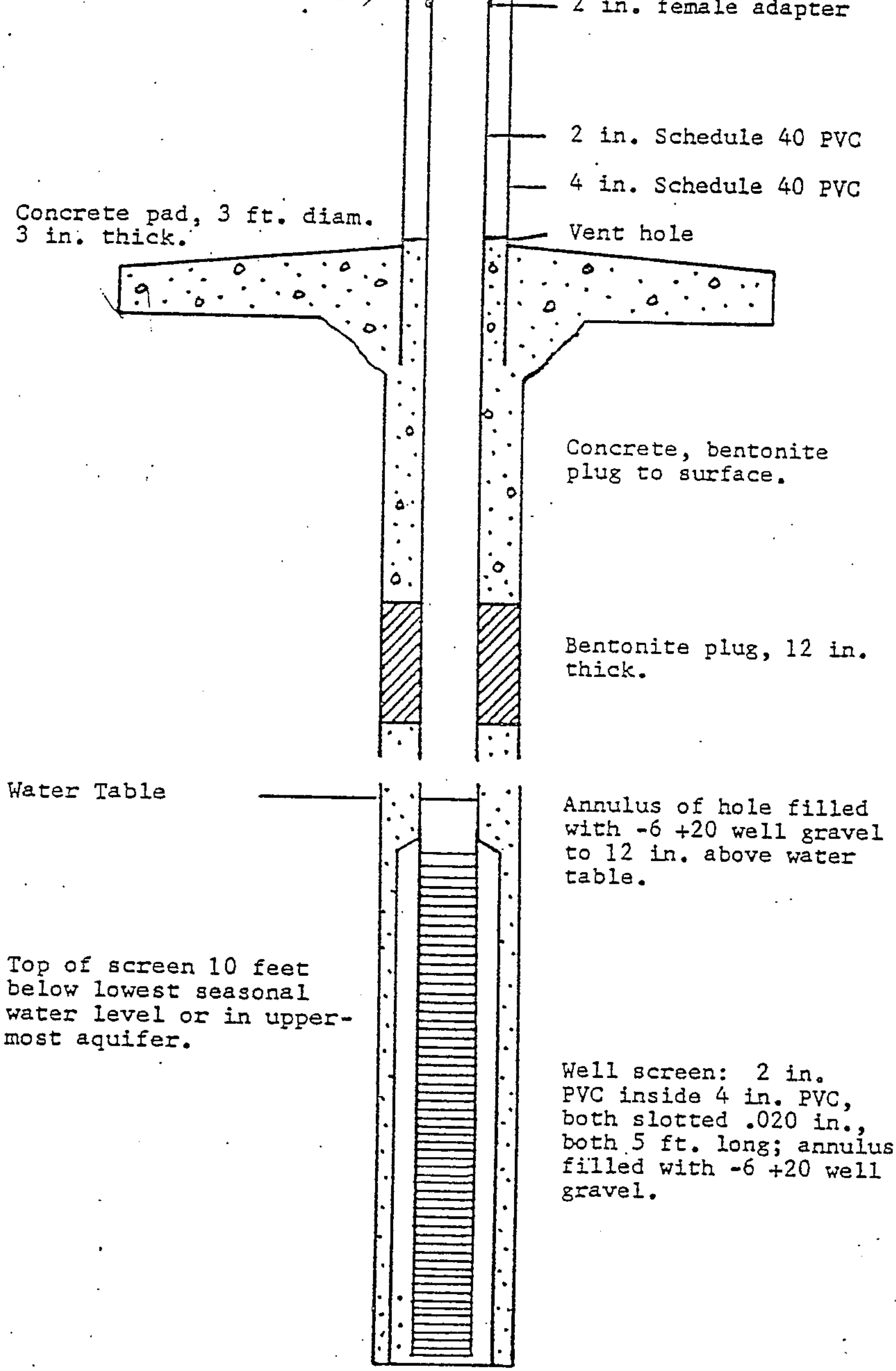
Monitoring wells MW-5, MW-6, MW-7, MW-9, MW-10, MW-12, MW-13, MW-14, MW-15, MW-16, MW-17, MW-18 and MW-19 were all installed using a 5" diameter barrel type hand auger, to a depth of approximately 16 feet, or less. Sampling is continuous with this type of drilling tool and provides excellent data on the soil composition. Where necessary, in order to prevent caving, a 6 inch diameter PVC casing was pushed 3 to 6 feet deep and the augering continued through this casing. A 2" ID, threaded, PVC screen, usually 10' long was set into the open hole and a graded (no 20) silica filter sand slowly poured into the annulus. A 1" PVC pipe was used to keep the sand from bridging by "jogging" the hole during this procedure. The sand was usually brought up to a foot or two above the screen and a bentonite seal (Holeplug or Benseal) placed above the filter sand. This seal was usually brought to a foot, more or less, below ground. Since it was planned to possibly convert these wells to monitoring wells the area above the seal was either left open or filled with soil. All equipment and materials were cleaned to monitoring well standards for this same reason. Shallow wells which were originally planned as monitoring wells were finished above the seal by the use of a cement-sand mix. A 4" steel electrical metal tubing (EMT) protective cover was set to the top of the seal and a locking cap installed. A concrete pad was then placed around the well. This procedure was used for all wells.

Wells MW3B, MW-4B, MW8, RW-1R and RW-2 were installed as described below.

MW-4B and MW8 were drilled using a 3 3/4" ID hollow stem auger. Samples were taken at 5' intervals following ASTMD 1586-84. After completion, the well screens and risers were set and the augers removed. The filters and seals were then placed in the annulus as shown on the boring log. All materials used were as described for the shallow wells.

Plate 4

Typical Monitoring Well



GA. Water Well Lic. 130

M1

Date: Dec. 15, 1982

Owner Manor Timber Company
Plant near Argyle, GA.
Location M1; north of observation well 9.
Driller Paul N. Clawson
Drilling Mud Used Economy Liquid Polygel

Screened From 21.0 ft. to 26.0 ft
Gravel Pack -6+20 mesh to 6.0 ft
Bentonite Seal 6.0 ft. to 5.0 ft
Concrete Seal from 5.0 ft. to sur
Total Well Depth 28.13 ft.
Water Level 7.02 ft. below well top

Depth From	To	Lithology	Remarks
0	4.1	Medium to coarse sand with abundant organic material.	
4.1	8.5	Tan to gray, very sandy clay. Sand fine to medium.	
8.5	13.5	Tan to gray, sandy clay. Sand is medium to coarse, grains rounded.	
3.5	16.2	Coarse to very coarse sand with minor gray clay.	Sand grains rounded to sub-angular.
16.2	20.8	Cream to pink sandy clay with a few thin beds of medium to coarse sand.	
20.8	26.5	Coarse to extremely coarse sand with a few thin beds of white to orange sandy clay.	Clay beds less than 4" thick. Lost 2gals mu
26.5	28.2	Coarse sand interbedded with white to orange sandy clay. About equal amounts.	
28.2	36.5	Coarse sand with minor white to orange clay.	
36.5	43.6	Coarse sand with 40% interbedded blue-gray sandy clay. Beds very thin to 1' thick.	
43.6	47.5	Coarse sand with minor orange clay interbedded with 30-40% gray sandy clay.	
47.5	50.5	Tough, plastic green clay. Trace of fine sand at top.	Shuts off mud returns. Plugged bit.
	50.5	Total depth.	

Paul N. Clawson
GA. Geologist Cert. 1
GA. Water Well Lic. 130

Monitoring Well Log

Date: May 29, 19

Owner Manor Timber Company
Argyle, Georgia
Location NW corner of waste pond
Well (MS) M1A
Driller Paul N. Clawson
Mud Used Economy Liquid Poly Gel

Screened From 34½ ft. to 3
Gravel Pack -6 +20 mesh to 24
Bentonite Seal 24 ft. to 23
Concrete Seal from 23 ft. t
Water Level ___ ft. below well
Well top elevation
Stick Up 2.70'

Depth From	To	Lithology	Remarks
0	4.3	Brown to black, medium sand with 10 to 20% decayed plant remains.	
4.3	8.5	Cream colored. Medium sand.	
8.5	13.1	Cream colored very clayey medium to coarse sand. Color changed to gray at 10 ft.	
13.1	16.3	Interbedded gray sandy clay with coarse sand. Thin beds; equal amounts of both	Slight mud loss to 1
16.3	21.2	Tough, gray-white sandy clay. Sand fine to cearse	Tends to shut off mu returns.
21.2	24.6	Gray-white sandy clay with 40% of coarse sand interbeds up to 6 inches thick.	
24.6	31.0	Coarse yellow to white sand with a few beds of white clayey fine sand up to 30	inches thick.
31.0	39.5	Coarse sand with a trace to a few percent yellow clay. A few gravel-size grains.	
39.5	43.0	Tough gray to gray-green sandy clay.	Tends to shut off mu turns. Hard drilling
43.0	45.0 TD	Coarse yellow sand with 10% gray to yellow clay.	
			Ream hole to 40 ft. set well screen.
		2" well - screen 2" in 4"	

GA. Geologist Cert. 190
GA. Water Well Lic. 130

Monitoring Well Log

M2

Date: Decembe

Owner: Manor Timber Company, Plant near Argyle, Georgia.
Location: M2; upgradient well; near observation well 6.
Driller: Paul N. Clawson
Drilling Mud Used: Economy Liquid Polygel

Screened From 26.5 ft. to 31
Gravel Pack -6+20 mesh to 4.8
Bentonite Seal 4.8 ft. to 3.7 f
Concrete Seal from 3.7 ft. to su
Total Well Depth 33.75 ft.
Water Level 6.0 ft. below well to

Depth From	To	Lithology	Remarks
0	4.8	Yellow medium to coarse sand; upper 3' with abundant organic matter.	Most sand grains sub-ang lar to bub-rounded.
4.8	11.2	Interbedded medium sandw/thin beds of white to tan clay. Sand beds make up 70% of interval.	
11.2	14.5	Coarse to very coarse sand w/30% white to gray clay.	
4.5	18.0	Coarse to very coarse sand w/30% tan clay and a few beds of light tan clay up to 3" thick.	
18.0	22.3	Light tan, very sandy clay. Sand ranges from very fine to coarse.	
22.3	26.6	Light tan, very sandy clay. Almost all of sand medium.	
26.6	35.8	Coarse sand w/minor tan clay. Below 32 ft., clay increases to 5% to 10%.	30 to 40 ft. lost 5 gal. mud.
35.8	46.8	Gray very sandy clay w/a few thin interbeds of very coarse sand.	
46.8	50.0	Tough, plastic green clay. Trace of very fine sand in upper 6 in.	Difficult drilling; clay tends to shut off mud returns, and to plug bit.
	50.0	Total Depth	

GA. Geologist Cert. 190

GA. Water Well Lic. 130

Monitoring Well Log

M3

Date: December 17, 19

ner . Manor Timber Company
Plant near Argyle, Georgia

Location M3; near observation well 4.

Driller Paul N. Clawson

Drilling Mud Used Economy Liquid Polygel

Screened From 32.2 ft. to 37.2 f

Gravel Pack -6+20 mesh to 5.5 f

Bentonite Seal 5.5 ft. to 4.4 f

Concrete Seal from 4.4 ft. to su

Total Well Depth 39.21 ft.

Water Level 8.19 ft. below well to

Depth From	To	Lithology	Remarks
0	3.0	Fine to medium sand, abundant organic material.	
3.0	6.1	Medium to coarse sand w/up to 5% white to tan clay.	
6.1	11.4	White, tough, very sandy clay.	Slow drilling because bit tends to plug.
.4	16.2	Coarse sand w/a few thin beds of white sandy clay up to 3 in. thick. Few very coarse grains.	Sand grains only slightly rounded.
16.2	23.2	Coarse sand w/minor white clay. (Under 5%)	
23.2	27.5	White to cream very sandy clay. Sand medium to coarse.	
27.5	30.3	Coarse sand w/ up to 10% white to orange clay.	
30.3	38.5	Coarse to extremely coarse sand w/trace to 1% white clay.	
38.5	46.4	White, very clayey, medium to coarse sand. Clay increases toward base.	
46.4	48.7	Light green, tough, plastic clay.	Feels like drilling rubbe
	48.7	Total depth.	

Paul N. Clawson
GA. Geologist Cert. 15.
GA. Water Well Lic. 130

Monitoring Well Log

Date: May 31, 1984

Owner: Manor Timber Company
Argyle, Georgia
Location: South end of waste pond
M3a
Driller: Paul N. Clawson
Mud Used: Economy Liquid Poly Gel

Screened From 32 ft. to 37
Gravel Pack -6 +20 mesh to 25½
Bentonite Seal 24½ ft. to 25½
Concrete Seal from 24½ ft. to s
Water Level ____ ft. below well top
Well top elevation ____ ft

Depth From	To	Lithology	Remarks
0	4.4	Tan to gray, medium to fine sand with minor amounts of organic material.	
4.4	11.9	Tough, gray, very sandy clay with occasional thin beds of sandy peat.	Tends to shut off mud returns.
11.9	25.4	Coarse sand with 30% to 40% of interbeds of gray, very sandy clay. Clay beds increase downward. At 20 ft., 75% sandy clay beds; at 30 ft., 90% sandy clay. Occasional traces of sandy peat.	
25.4	31.8	Gray to yellow, coarse to extremely coarse sand with angular grains.	
31.8	36.6	As above with 5% yellow clay.	
36.6	39.2	Gray to tan very sandy clay with 20% thin interbeds of coarse sand.	
39.2	40.0 TD	Gray-green, slightly sandy clay.	

EARL F. TITCOMB, JR.
CONSULTANT IN GEOLOGY

MW 3B

DRILLING LOG	COMPANY: Manor Timber Co	INSTALLATION: Argyle, Ga	SHEET 1 OF 1 SHEETS
LOCATION (Coordinates or Station): 10' E. of MW 3A		SIZE AND TYPE OF BIT: 7 5/8 & 4 1/2 fishtail	
DRILLING AGENCY: EFT Inc		TOTAL NO. OF OVERBURDEN SAMPLES TAKEN:	
THICKNESS OF OVERBURDEN: NA		DATE HOLE: STARTED 6 Oct 91	COMPLETED 18 Oct 91
DEPTH DRILLED INTO ROCK: NA		ELEVATION TOP OF HOLE: 158.6' msl	
TOTAL DEPTH OF HOLE: 64.5'		ELEVATION GROUND WATER: 116.52' msl 18 Oct 91	
NAME OF DRILLER: Titcomb		SIGNATURE OF INSPECTOR OR GEOLOGIST: Earl F. Titcomb Jr P.G.	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	SPT	BOX OR SAMPLE NO	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
						Protective Cover, 4" EMT 160.89 msl
158.6'	0		SM black to gray silty fine sand with fibers and wood.			sacrete
			SC mottled gray, orange clayey sand with occ. organic material			2" PVC riser
	10		SC mottled gray orange slightly clayey medium sand with interbeds of gray sandy clay.			neat cement grout with 4% bentonite, tremied in place
	20					
			SM gray to yellow, silty medium to coarse sand, becomes more clayey with depth.			5" PVC casing
	30					
			SC			
WL. 115.21' 24 Nov 91	40		CL pale green, sandy clay			Bottom 5" casing
	50					Bottom 7 5/8" hole
			SC green-gray clayey sand			Top of Filter
						Top of Screen
			CL gray sandy clay			
	60		SC gray clayey sand			2" x 10' "Monoflex" screen, .010" slot.
			CL blue-gray sandy clay			silica sand, No. 20 Coastal Aggregates
			Bottom of Hole 64.5'			cap

GA. Geologist Cert. 190 Monitoring Well Log 19.
GA. Water Well Lic. 130

M4

Date: December 16, 1983

ner Manor Timber Company
Plant near Argyle, Georgia
Location M4: about 60 ft. west of observation well 4, near stored fence posts.
Driller Paul N. Clawson
Drilling Mud Used Economy Liquid Polygel

Screened From 31.5 ft. to 36.5 ft.
Gravel Pack -6+20 mesh to 5.6 ft.
Bentonite Seal 5.6 ft. to 4.5 ft.
Concrete Seal from 4.5 ft. to sur.
Total Well Depth 38.88 ft.
Water Level 8.2 ft. below well top.

Depth From	To	Lithology	Remarks
0	2	Very densely-packed fill material with thin, creosote-saturated layers up to ½" thick.	
2	4.3	Coarse sand w/up to 5% plant material, trace of gray clay.	
4.3	7.1	Tan to gray, very sandy clay w/streaks of orange and red clay up to ½" thick.	
7.1	10.5	Red medium to coarse sand w/up to 5% orange to red clay.	
10.5	12.4	Cream to orange very sandy clay. Sand is medium to coarse, grains well rounded.	
12.4	19.5	Coarse white sand. Few thin very sandy beds of white clay 17' to base.	
19.5	23.2	White to tan sandy clay. Sand fine to coarse.	
23.2	25.3	Coarse white sand w/minor gray clay.	
25.3	27.0	Very clayey medium to coarse sand.	
27.0	37.5	Coarse white sand. At 32½', color changes to orange. Few 1" beds of white sandy clay below 32 ft.	
37.5	47.8	Coarse white sand lightly cemented with 10-20% white and blue-gray clay.	Slows mud return.
7:8	53.0	Soft, plastic light green clay.	Slows or stops mud return; easily plugs bit.
	53.0	Total depth.	

Paul N. Clawson
GA. Geologist Cert. 19…
GA. Water Well Lic. 130

Monitoring Well Log

Date: May 30, 1984

Owner: Manor Timber Company
Argyle, Georgia

Location: Inside gate (M4a)

Driller: Paul N. Clawson

Mud Used: Economy Liquid Poly Gel

Screened From 33 ft. to 38
Gravel Pack -6 +20 mesh to 26
Bentonite Seal 25 ft. to 26
Concrete Seal from 25 ft. to
Water Level ____ ft. below well to
Well top elevation ____

Depth From	To	Lithology	Remarks
0	3.0	Sandy, clayey fill material.	
3.0	9.4	Very sandy tan clay.	
9.4	14.2	Tough, gray-white sandy clay.	Shuts off mud returns. Hard drilling.
14.2	16.1	Slightly clayey, white, corase to very coarse sand.	
16.1	19.3	Interbeds up to 4 inches thick of coarse sand with 20% white clay with white sandy clay.	
19.3	21.5	Tough, white, slightly sandy clay.	Shuts off mud returns; very hard drilling.
21.5	26.1	Interbedded white clayey coarse sand and white very sandy clay. Sand fine to medium. Beds 3 in. to 10 in. thick.	
26.1	33.0	Coarse white sand with 10% to 15% white clay.	
33.0	38.0	Coarse sand to gravel. Almost pure quartz. Many large angular grains..	Feels very coarse at 3
38.0	40.6	Coarse sand with a trace to 10% yellow and white clay.	
40.6	45.0 TD	Tough gray sandy clay. Sand fine to coarse, makes up 20% to 40% of interval.	

EARL F. TITCOMB, JR.
CONSULTANT IN GEOLOGY

MW4B

DRILLING LOG	COMPANY: Manor Timber	INSTALLATION: Manor, GA	SHEET 1 OF 1 SHEETS
LOCATION (Coordinates or Station): adjacent to MW4A		SIZE AND TYPE OF BIT: 3 3/4" ID Hollow Stem Auger	
DRILLING AGENCY: EFT INC		TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: 1	
THICKNESS OF OVERBURDEN: na		DATE HOLE: 5/18/93	STARTED / COMPLETED
DEPTH DRILLED INTO ROCK: na		ELEVATION TOP OF ~~HOLE~~ casing: 161.43'	
TOTAL DEPTH OF HOLE: 30.0'		ELEVATION GROUND WATER: 154.84 (6/3/93)	
NAME OF DRILLER: Reeves/Titcomb		SIGNATURE OF INSPECTOR OR GEOLOGIST: Earl F. Titcomb P.G.	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	SPT	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
						4" EMT w/ locking cap
	0		Gravel			Concrete Pad
	2		SM black silty fine sand			
	4		SM pale yellow gray silty fine sand			
	6		SC yellow-brown slightly clayey sand - becomes damp			Sand Mix
	8		SC/SM pale yellow pinkish gray medium sand			
	10		SC/SM pale yellow gray medium sand			
	12					
	14		SC light gray medium sand			
	16					Top of Seal
	18					"Holeplug" bentonite
						Top of filtersand
	20		– from @ 20.0-22.0' difficult drilling			Top of Screen
	22					
	24					No. 1630 silica sand - Savannah Abrasives
	26					
	28					2" PVC screen 0.10" slot
						cap

TD = 30.0'

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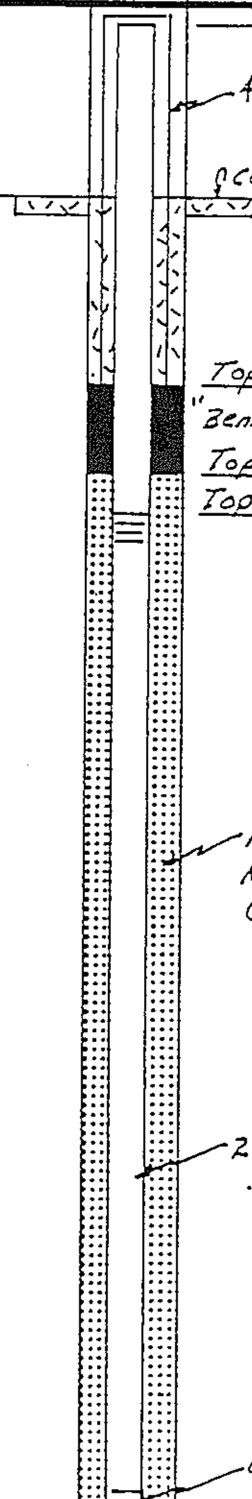
CONSULTANT IN GEOLOGY

MW5

DRILLING LOG	COMPANY: MANOR TIMBER COMPANY	INSTALLATION: ARGYLE, GA.	SHEET 1 OF 1 SHEETS
LOCATION (Coordinates or Station): 10' S. of SW corner old impoundment		SIZE AND TYPE OF BIT: 5" HAND AUGER	
DRILLING AGENCY: EFT Inc		TOTAL NO. OF OVERBURDEN SAMPLES TAKEN:	
THICKNESS OF OVERBURDEN: NA		DATE HOLE: STARTED 28 Sept 91	COMPLETED 28 Sept 91
DEPTH DRILLED INTO ROCK: NA		ELEVATION TOP OF HOLE: 159.6' ground surface	
TOTAL DEPTH OF HOLE: 13.5'		ELEVATION GROUND WATER:	
NAME OF DRILLER: TITCOMB		SIGNATURE OF INSPECTOR OR GEOLOGIST: Earl F. Titcomb P.G.	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	SPT	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
						161.40 msl
						4" EMT with locking cover
159.6	0					Concrete Pad
			SM brown to gray silty fine sand			
			1.5 to 3.0 minor roots			
	2					Top of Seal
						"Benseal"
			3.0 to 4.5 gray with minor roots			Top of Filter
						Top of Screen
	4					
			gray with orange mottling, minor roots, faint odor			
			SC orange with gray mottling clayey fine sand			
	6					
			6.8 - 7.5 coarser, more clay, faint odor gray staining			Filter Sand, No20 Silica Sand Coastal Aggregates
			7.5 to 8.7 fine to medium sand			
	8					
			8.7 to 10.5 coarser, less clay, faint odor			
	10					2" PVC screen, "Monoflex" .010" slot
			10.5 to 13.5 fine to medium sand, becoming more gray in color			
	12					
						cap
			Bottom of Hole 13.5'			

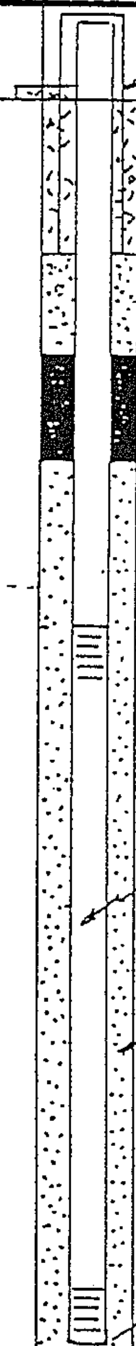


EARL F. TITCOMB, JR.
CONSULTANT IN GEOLOGY

MW6 (AB

DRILLING LOG	COMPANY: MANOR TIMBER Co	INSTALLATION: ARGYLE, GA.	SHEET 1 OF 1 SHEETS
LOCATION (Coordinates or Station): SE corner old pond		SIZE AND TYPE OF BIT: 5" hand auger	
DRILLING AGENCY: EFT Inc		TOTAL NO. OF OVERBURDEN SAMPLES TAKEN	
THICKNESS OF OVERBURDEN: NA		DATE HOLE: STARTED 6 Apr 91	COMPLETED 6 Apr 91
DEPTH DRILLED INTO ROCK: NA		ELEVATION TOP OF HOLE: 158.9 msl	
TOTAL DEPTH OF HOLE: 15.8'		ELEVATION GROUND WATER: 155.66 1 June 91	
NAME OF DRILLER: MINTON		SIGNATURE OF INSPECTOR OR GEOLOGIST: Earl F. Titcomb Jr. P.G.	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
			Note: AB1 converted to permanent monitoring well 28 Sept 1991	— 161.11' stick up 2.2' 4" EMT Protective Cover
158.9	0		SM gray silty fine sand	Note: Set 6' of 6" casing to maintain hole during drilling. Pulled as filter was emplaced. Left some in place tempora
			1.5 to 3.0 black to gray mottled	
	2			Top of Seal 2.6'
WL 155.66 1 June 91			3.0 to 5.0 light gray	Bariod Holeplug
	4			Top of Filter 3.7
			SM-SC mottled orange-red-gray, silty slightly clayey sand, slight odor	Top of Screen
	6			
			light gray silty medium sand very slightly clayey	
	8		8.5 mottled light gray and reddish orange	2"x10' Monoflex Screen .010" slot
	10		SC gray & orange clayey sand very stiff	Silica sand, 16-20 "Coastal Aggregates"
			11.5 more sandy, light gray	
	14			cap
			Total Depth 15.8'	
	18			

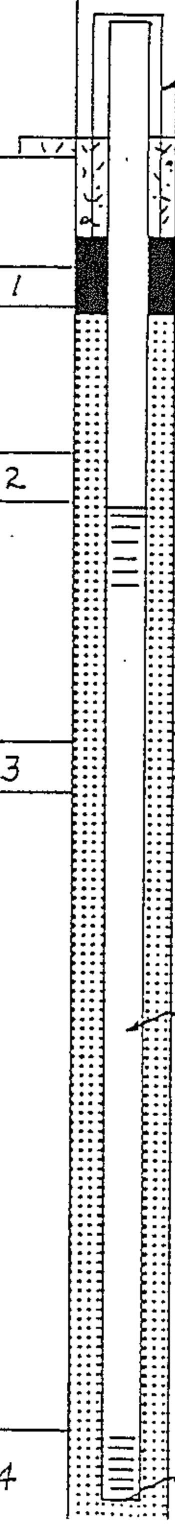


EARL F. TITCOMB, JR.
CONSULTANT IN GEOLOGY

MW7

DRILLING LOG	COMPANY: MANOR TIMBER COMPANY	INSTALLATION: ARGYLE GA	SHEET 1 OF 1 SHEETS
LOCATION (Coordinates or Station): Old House near gate		SIZE AND TYPE OF BIT: 5" hand auger	
DRILLING AGENCY: EFT Inc		TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: 4	
THICKNESS OF OVERBURDEN: NA		DATE HOLE: STARTED 6 Oct91	COMPLETED 6 Oct91
DEPTH DRILLED INTO ROCK: NA		ELEVATION TOP OF HOLE: 158.2 ground surface	
TOTAL DEPTH OF HOLE: 14.0'		ELEVATION GROUND WATER	
NAME OF DRILLER: MINTON		SIGNATURE OF INSPECTOR OR GEOLOGIST: Earl F. Titcomb P.G.	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	SPT	BOX OR SAMPLE NO	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
						159.65 msl
						4"EMT with locking cap
						Concrete Pad
158.2	0		SM brown to gray, silty fine sand			Top of Seal
					1	Benseal
						Top of Filter Sand
	2					
			SM-SC yellow, orange to gray silty, slightly clayey fine sand		2	Top of Screen
	4					
	6		SC mottled red, orange, gray clayey medium sand		3	No20, silica sand Coastal Aggregates
	8		SC-SP light gray, slighty clayey fine sand			2"PVC screen "Monoflex" .010"slot
			9.5 to 10.5 occasional thin .01', light gray clay layers			
	10		10.5 to 14.0 white to light gray			
	12					
	14		Bottom of Hole 14.0'		4	cap

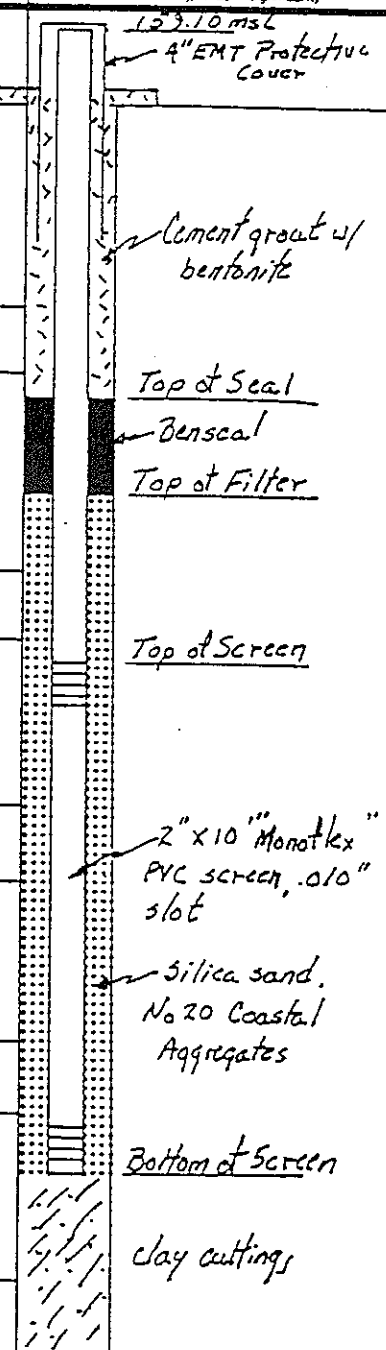


EARL F. TITCOMB, JR.
CONSULTANT IN GEOLOGY

MW 8

DRILLING LOG	COMPANY: Manor Timber Co
INSTALLATION: Argyle, Ga.	SHEET 1 OF 1 SHEETS
LOCATION (Coordinates or Station):	SIZE AND TYPE OF BIT: 3¾" ID HSA, 1½" splitspoon
DRILLING AGENCY: EFT Inc	TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: 5
THICKNESS OF OVERBURDEN: NA	DATE HOLE: STARTED 17Nov91; COMPLETED 24Nov91
DEPTH DRILLED INTO ROCK: NA	ELEVATION TOP OF HOLE: 157.4'
TOTAL DEPTH OF HOLE: 25.7'	ELEVATION GROUND WATER:
NAME OF DRILLER: Titcomb	SIGNATURE OF INSPECTOR OR GEOLOGIST: Earl F. Titcomb Jr. P.G.

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	SPT	BOX OR SAMPLE NO	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
157.4	0		SM gray to yellow silty fine sand			
	4		SC yellow-gray clayey med. sand 5.0 to 8.0 mottled red & yellow	28	1	
			water level during drilling			
	8		8.0 to 12.5 pale yellow green	16	2	
	12		SC-SM pale olive gray slightly clayey, silty medium sand. Interbedded silty saturated sand layers with layers of very clayey sand.	16	3	
	16					
	20			19	4	
	24		SC pale olive green, clayey medium sand	32	5	
			Bottom of Hole 25.7			



BLOWS PER FOOT:

Number required to drive 1⅜" ID splitspoon w/140 lb. hammer falling 30".

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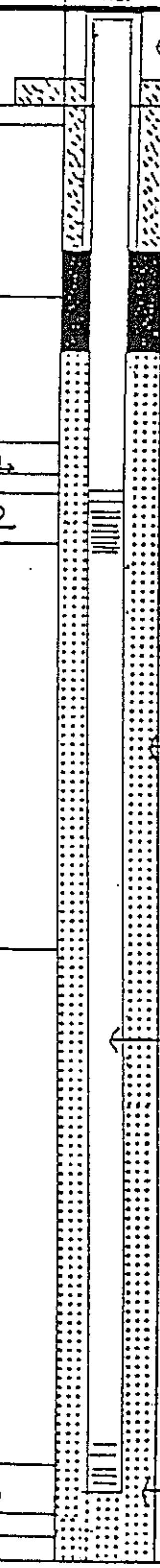
MW9

DRILLING LOG	COMPANY: Manor Timber Co.	INSTALLATION: Argyle, GA	SHEET 1 OF 1 SHEETS

LOCATION (Coordinates or Station): MW9 - 125' from NE corner fence	SIZE AND TYPE OF BIT: 5" auger
DRILLING AGENCY: EFT, Inc.	TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: 3
THICKNESS OF OVERBURDEN: NA	DATE HOLE: 8 Feb 92 — STARTED — COMPLETED
DEPTH DRILLED INTO ROCK: NA	ELEVATION TOP OF HOLE: 156.24'
TOTAL DEPTH OF HOLE: 14.7'	ELEVATION GROUND WATER: 155.25' (Feb 20, 1992)
NAME OF DRILLER: Minton	SIGNATURE OF INSPECTOR OR GEOLOGIST: Earl F. Titcomb P.G.

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	SPT	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	0		organic matter			4" EMT with locking cap; concrete pad
	0–2		SM black silty fine sand with roots and other debris			Top of Seal
	2–4		SM gray (10YR 5/1) with slight amount of orange slightly clayey sand	1		Top of Filter Sand
	4–8.7		SM gray (10YR 5/1) more cohesive, slightly clayey, medium sand	2		Top of Screen; No 20, silica sand Coastal Aggregates
	8.7–14.7		SM very dark gray (5YR 3/1) fine-medium silty sand	3		2" PVC screen "Monoflex" .010" slot; cap
			Bottom of Hole 14.7'			



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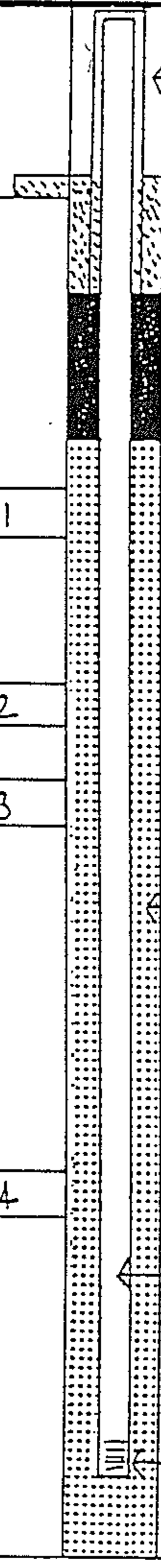
MW10

DRILLING LOG	COMPANY Manor Timber Co	INSTALLATION Argyle, GA	SHEET 1 OF 1 SHEETS
LOCATION (Coordinates or Station) MW10 - 125' SE from SE corner		SIZE AND TYPE OF BIT 5" auger	
DRILLING AGENCY EFT, Inc.		TOTAL NO. OF OVERBURDEN SAMPLES TAKEN 4	
THICKNESS OF OVERBURDEN NA		DATE HOLE 8 Feb 92	STARTED / COMPLETED
DEPTH DRILLED INTO ROCK NA		ELEVATION TOP OF HOLE 157.94'	
TOTAL DEPTH OF HOLE 13.3'		ELEVATION GROUND WATER 157.23' Feb 20, 1992	
NAME OF DRILLER Minton		SIGNATURE OF INSPECTOR OR GEOLOGIST [illegible] P.G.	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	SPT	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
						4" EMT with locking cap
	0		organic rich sandy matter			Concrete pad
			SM gray silty sand			Top of Seal
	2		SM light gray (5YR 7/2) silty sand			Bentonite hole plug
						Top of Filter Sand
						Top of Screen
				1		
	4					
			SM-SC pale yellow (2.5YR 7/4) silty clayey sand with orange streaks	2		
	6		SC light gray (2.5YR 7/2) with small orange blebs clayey sand	3		No 20, silica sand Coastal Aggregates
	8		no orange			
	10		SC light gray (10YR 7/1) clayey sand	4		
			much less clay			2" PVC screen "Monoflex" .010" slot
	12					
			Bottom of Hole 13.3'			Cap
	14					



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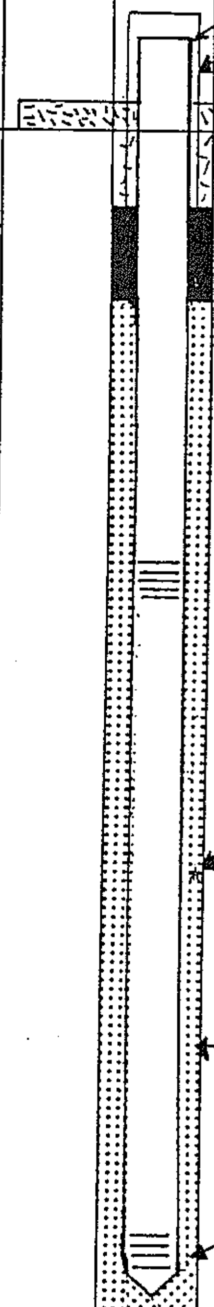
MW11

DRILLING LOG

COMPANY: Manor Timber Co	INSTALLATION: Argyle, GA
SHEET 1 OF 1 SHEETS	
LOCATION (Coordinates or Station): 112' N 67°E from MW2	SIZE AND TYPE OF BIT: 5" hand auger
DRILLING AGENCY: EFT Inc.	TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: na
THICKNESS OF OVERBURDEN: na	DATE HOLE: 5/12/92 — STARTED — COMPLETED
DEPTH DRILLED INTO ROCK: na	ELEVATION TOP OF HOLE: 156.0'
TOTAL DEPTH OF HOLE: 14.5'	ELEVATION GROUND WATER: 153.20' (May 20, 1992)
NAME OF DRILLER: Reeves	SIGNATURE OF INSPECTOR OR GEOLOGIST: Earl F. Titcomb P.G.

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	SPT	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
						157.20'msl TC
						4" EMT with locking cap
	0					Concrete Pad
	0–1		SM black (7.5R N2.5/0) silty fine sand.			Top of Seal
	1–3		SC yellowish brown (10YR 5/8) clayey medium sand.			Benseal Top of Filter Sand
	3–6.5		SM light brownish gray (10YR 6/2) silty medium sand.			Top of Screen
	6.5–14.5		SC v. stiff; lt. brownish gray clayey sand.			
	8		becomes gray (2.5YR N4/0)			No. 20 silica sand Coastal Aggregates
	9.5		becomes s. mottled gray and brown (7.5YR 5/2)			2" PVC screen "Monoflex" .010" slot
	11.5		becomes damp			
	12.8		water			Cap
	14.5		Bottom of hole = 14.5'			



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MW12

DRILLING LOG	COMPANY: Manor Timber Co.	INSTALLATION: Argyle, GA	SHEET 1 OF 1 SHEETS
LOCATION (Coordinates or Station): 130' S of MW8		SIZE AND TYPE OF BIT: 5" hand auger to 12.5 then 3 1/4" auger	
DRILLING AGENCY: EFT Inc.		TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: na	
THICKNESS OF OVERBURDEN: na		DATE HOLE: 5/12/92	STARTED / COMPLETED
DEPTH DRILLED INTO ROCK: na		ELEVATION TOP OF HOLE: 157.5'	
TOTAL DEPTH OF HOLE: 14.5'		ELEVATION GROUND WATER: 154.41 (June 2, 1992)	
NAME OF DRILLER: Reeves & Titcomb		SIGNATURE OF INSPECTOR OR GEOLOGIST: Earl F. Titcomb P.G.	

DEPTH	CLASSIFICATION OF MATERIALS (Description)	SPT	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
above 0				159.56 msl
above 0				4" EMT with locking pad
0				Concrete pad
0	SM grayish brown (10YR 5/2) fine to med. silty sand			
~1	SM mottled brownish yellow (10YR 6/8) and very pale brown (10YR 7/4) med. silty sand.			Top of Seal
2	SC mottled brownish yellow and light gray (5Y 7/1)			Benseal; Top of filter sand; Top of Screen
~3.5	less gray; mostly brownish yellow with some red (10R 4/8)			
~4.5	v. stiff and plastic; medium coarse sand; becoming lighter and less clayey; Water @ 5.0'			
~7	Inner layered, light gray			No20 silica sand Coastal Aggregates
8	Water table			
10				2" PVC screen "Monoflex" 0.10" slot
~13.5				cap
14.5	Bottom of hole = 14.5' Hole caved at 12.9'			

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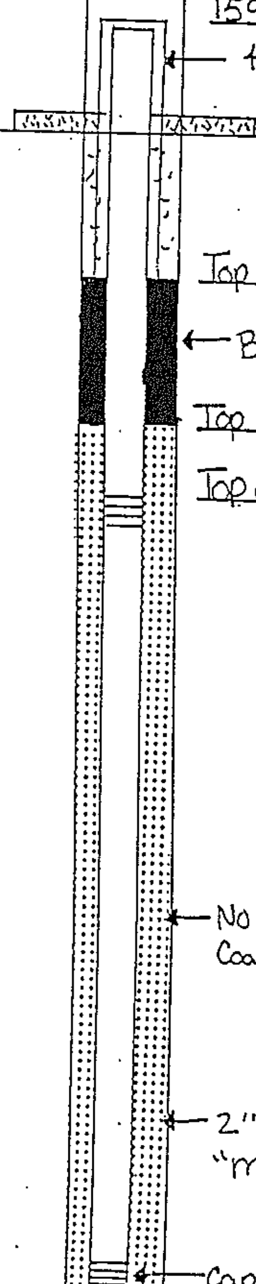
MW13

DRILLING LOG	COMPANY Manor Timber Co.	INSTALLATION Argyle, GA	SHEET 1 OF 1 SHEETS
LOCATION (Coordinates or Station) 41.7' S54° W of MW4A		SIZE AND TYPE OF BIT 5" hand auger	
DRILLING AGENCY EFT Inc.		TOTAL NO. OF OVERBURDEN SAMPLES TAKEN no	
THICKNESS OF OVERBURDEN na		DATE HOLE 5/13/92	STARTED / COMPLETED
DEPTH DRILLED INTO ROCK na		ELEVATION TOP OF HOLE 158.7'	
TOTAL DEPTH OF HOLE 14.3'		ELEVATION GROUND WATER 154.40 (June 2, 1992)	
NAME OF DRILLER Reeves		SIGNATURE OF INSPECTOR OR GEOLOGIST Earl F. Titcomb P.G.	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	SPT	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
						159.86 msl
						4" EMT with locking cap
	0					Concrete pad
	0–3.5		SM lightgray (2.5Y 7/2) to black (7.5R N2.5/0) Silty fine sand. At 0.5' black bark and fiber. At 1.0' color change to brownish yellow (10YR 4/8) and gray			Top of Seal; Benseal; Top of filter sand
	3.5–14.3		SC gray with brownish yellow clayey fine sand. mottled gray, brownish yellow, and some red (10R 4/8) sand clay			Top of Screen
			becomes more sandy (medium)			
			mottled white (7.5YR N8/0), lt. reddish brown (2.5YR 4/4), brownish yellow and red			No 20 silica sand Coastal Aggregates
			lighter in color - lt. reddish brown and lt. gray much sandier (coarse to medium)			2" PVC screen "Monoflex" .010" slot
	14					Cap
			Bottom of hole = 14.3'			



Depth scale: 0, 2, 4, 6, 8, 10, 12, 14, 16

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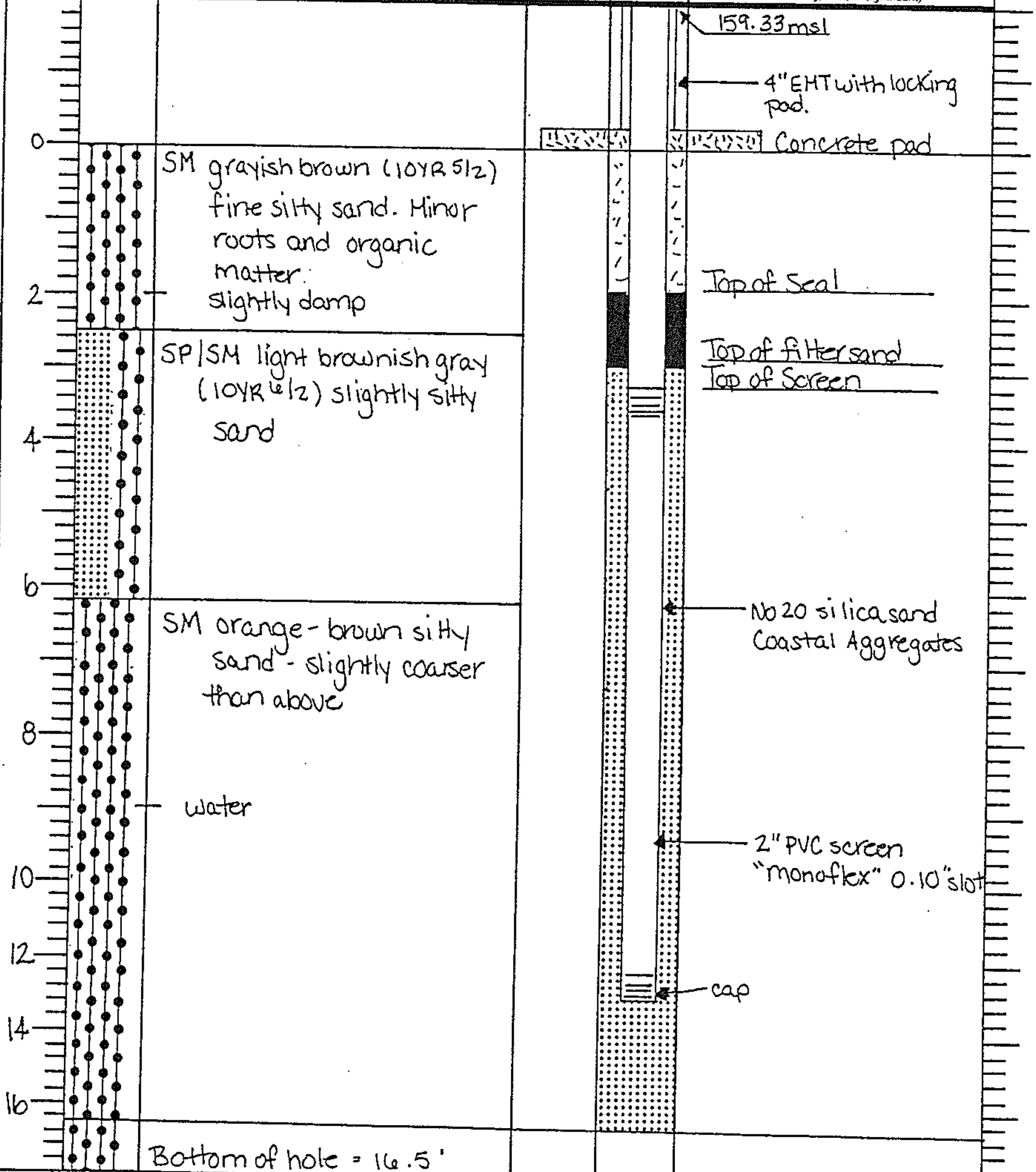
MW14

DRILLING LOG	COMPANY Manor Timber Co	INSTALLATION Argyle, GA	SHEET OF SHEETS
LOCATION (Coordinates or Station)	272' N 70°E of MW2	SIZE AND TYPE OF BIT	5" hand auger
DRILLING AGENCY	EFT, Inc.	TOTAL NO. OF OVERBURDEN SAMPLES TAKEN	
THICKNESS OF OVERBURDEN	NA	DATE HOLE 17 July 1992	STARTED / COMPLETED
DEPTH DRILLED INTO ROCK	NA	ELEVATION TOP OF HOLE	156.57
TOTAL DEPTH OF HOLE	16.5'	ELEVATION GROUND WATER	152.19 (24 July 1992)
NAME OF DRILLER	Reeves	SIGNATURE OF INSPECTOR OR GEOLOGIST	Earl F. Titcomb P.G.

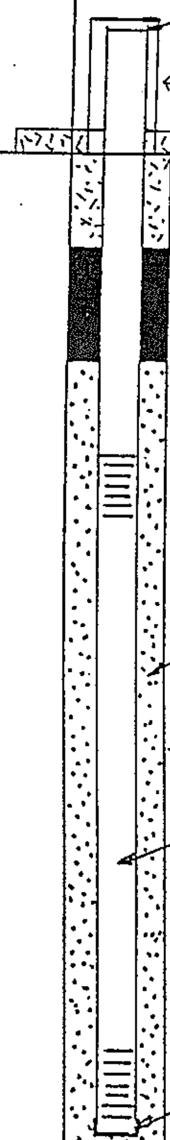
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	SPT	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
						159.33 msl
						4" EMT with locking pad.
	0					Concrete pad
	0–2.5		SM grayish brown (10YR 5/2) fine silty sand. Minor roots and organic matter. slightly damp			Top of Seal
	2.5–6		SP/SM light brownish gray (10YR 6/2) slightly silty sand			Top of filter sand Top of Screen
	6–16.5		SM orange-brown silty sand - slightly coarser than above water			No 20 silica sand Coastal Aggregates 2" PVC screen "monoflex" 0.10" slot cap
	16.5		Bottom of hole = 16.5'			



MW15*

DRILLING LOG	COMPANY: MANOR TIMBER Co	INSTALLATION: ARGYLE, GA	SHEET 1 OF 1 SHEETS
LOCATION (Coordinates or Station): E. of pond - near MW2		SIZE AND TYPE OF BIT: 5" Auger	
DRILLING AGENCY: EFT INC		TOTAL NO. OF OVERBURDEN SAMPLES TAKEN	
THICKNESS OF OVERBURDEN: NA		DATE HOLE: STARTED 3 May 91	COMPLETED 3 May 91
DEPTH DRILLED INTO ROCK: NA		ELEVATION TOP OF HOLE: 156.7' msl	
TOTAL DEPTH OF HOLE: 10.6'		ELEVATION GROUND WATER: 155.96, 1 June 91	
NAME OF DRILLER: MINTON		SIGNATURE OF INSPECTOR OR GEOLOGIST: Carl F. Titcomb	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	SPT	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
						158.49 msl
						4"EMT with locking cap
156.7	0					Concrete Pad
155.96 1 June 91			SC mottled orange-red gray clayey sand			
			SM gray silty sand			Top of Seal 1.0' "Benseal"
	2		SM gray silty medium to fine sand			Top of Filter 2.2'
						Top of Screen 3.1'
	4		SM-SC gray silty-clayey fine to medium sand.			
	6					No 30 silica sand Scruggs Sand Co.
						2" PVC, .010" slot
	8					
	10					cap
			Total Depth 10.6'			



*formerly AB4

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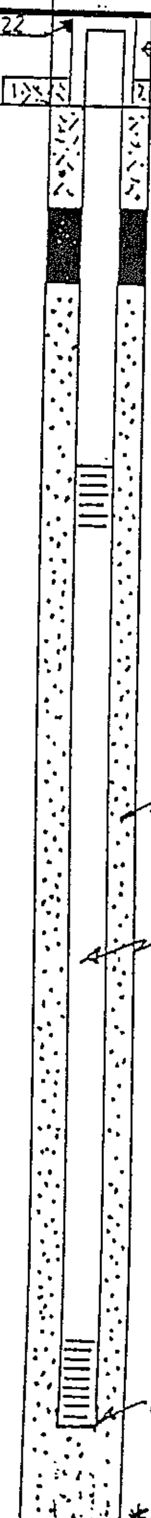
MW16*

DRILLING LOG	COMPANY: MANOR TIMBER Co
INSTALLATION: ARGYLE GA.	SHEET 1 OF 1 SHEETS
LOCATION (Coordinates or Station): NE corner old pond	SIZE AND TYPE OF BIT: 5" auger
DRILLING AGENCY: EFT INC	TOTAL NO. OF OVERBURDEN SAMPLES TAKEN:
THICKNESS OF OVERBURDEN: NA	DATE HOLE: STARTED 3 May 91; COMPLETED 3 May 91
DEPTH DRILLED INTO ROCK: NA	ELEVATION TOP OF HOLE: 155.8'
TOTAL DEPTH OF HOLE: 15.0'	ELEVATION GROUND WATER: 155.59' 1 June 91
NAME OF DRILLER: MINTON	SIGNATURE OF INSPECTOR OR GEOLOGIST: Earl F. Titcomb

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
				157.22 msl; 4" EMT with locking cap
155.8	0		SM gray organic silty sand	Concrete Pad
			SC orange clayey sand cap material	Top of Seal 1.1' "Benseal"
	2		SM gray silty very fine sand	Top of Filter 1.9'
	4		SM-SC gray silty, clayey fine to medium sand, odor	Top of Screen 3.8'
	6–14		SC gray clayey fine to medium sand, clay pale blue-gray color.	silica sand, No.20 Coastal Aggregates; 2" PVC screen, .010" slot "Monoflex"; cap
	15		CL gray sandy clay	*formerly AB3

Total Depth 15.0'



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CONSULTANT IN GEOLOGY

MW17

DRILLING LOG	COMPANY: Manor Timber Co.	INSTALLATION: Manor, GA	SHEET 1 OF 1 SHEETS
LOCATION (Coordinates or Station)		SIZE AND TYPE OF BIT: 5" hand auger	
DRILLING AGENCY: EFT INC		TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: 1	
THICKNESS OF OVERBURDEN: na		DATE HOLE: 5/19/93	STARTED / COMPLETED
DEPTH DRILLED INTO ROCK: na		ELEVATION TOP OF ~~HOLE~~ casing: 157.95	
TOTAL DEPTH OF HOLE: 15.7'		ELEVATION GROUND WATER: 154.63 (6/3/93)	
NAME OF DRILLER: Reeves/Titcomb		SIGNATURE OF INSPECTOR OR GEOLOGIST: Earl F. Titcomb P.G.	

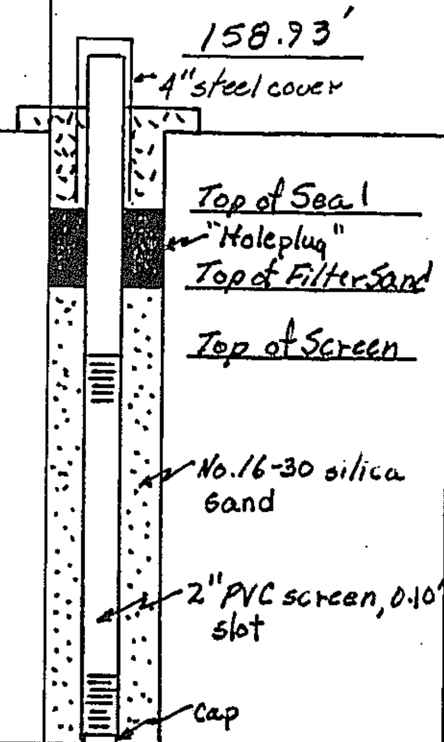
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	SPT	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	above 0					4"EMT w/ locking cap
	0					Concrete Pad
	0–1		SC orange silty clayey sand			
	1–3.5		SM light gray/brownish gray silty fine sand			Concrete Mix
						Top of Seal
						"Holeplug" bentonite
	3.5–15.7		SC light gray slightly clayey fine sand at 4.5' becomes coarser grained - medium sand			Top of Filter Sand
						Top of Screen
	10					No. 1630 silica sand - Savannah Abrasives
	12					2" PVC screen 0.10" slot
	15.7					cap
	16		Total Depth = 15.7'			

EARL F. TITCOMB, JR.
CONSULTANT IN GEOLOGY

MW18

DRILLING LOG	COMPANY Manor Timber Co	INSTALLATION Argyle, Ga	SHEET 1 OF 1 SHEETS
LOCATION (Coordinates or Station) N. of MW16		SIZE AND TYPE OF BIT 5" Hand Auger	
DRILLING AGENCY EFT		TOTAL NO. OF OVERBURDEN SAMPLES TAKEN	
THICKNESS OF OVERBURDEN NA		DATE HOLE	STARTED 29 Nov 1996 / COMPLETED 29 Nov 1996
DEPTH DRILLED INTO ROCK NA		ELEVATION TOP OF HOLE 158.93' msl	
TOTAL DEPTH OF HOLE 16.1'		ELEVATION GROUND WATER 154.83' msl (31 Dec96)	
NAME OF DRILLER Minton		SIGNATURE OF INSPECTOR OR GEOLOGIST Earl F. Titcomb	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	SPT	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	0		SM/SG gray very slighty silty & clayey, fine sand			
WL 4.10 31Dec96	5					
	10					
	15					
			Total Depth 16.1'			
	20					



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CONSULTANT IN GEOLOGY

MW 19

DRILLING LOG	COMPANY: Manor Timber Co	INSTALLATION: Argyle, Ga	SHEET 1 OF 1 SHEETS
LOCATION (Coordinates or Station): North of WMA		SIZE AND TYPE OF BIT: 5" diameter auger	
DRILLING AGENCY: EFT Inc		TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: 3	
THICKNESS OF OVERBURDEN: NA		DATE HOLE: STARTED 9 Sept 98	COMPLETED 9 Sept 98
DEPTH DRILLED INTO ROCK: NA		ELEVATION TOP OF HOLE: 160.47 TOC (msl)	
TOTAL DEPTH OF HOLE: 16.0'		ELEVATION GROUND WATER: 153.69, 9 Sept 98	
NAME OF DRILLER: Ed Minton		SIGNATURE OF INSPECTOR OR GEOLOGIST: Earl F. Titcomb Jr	

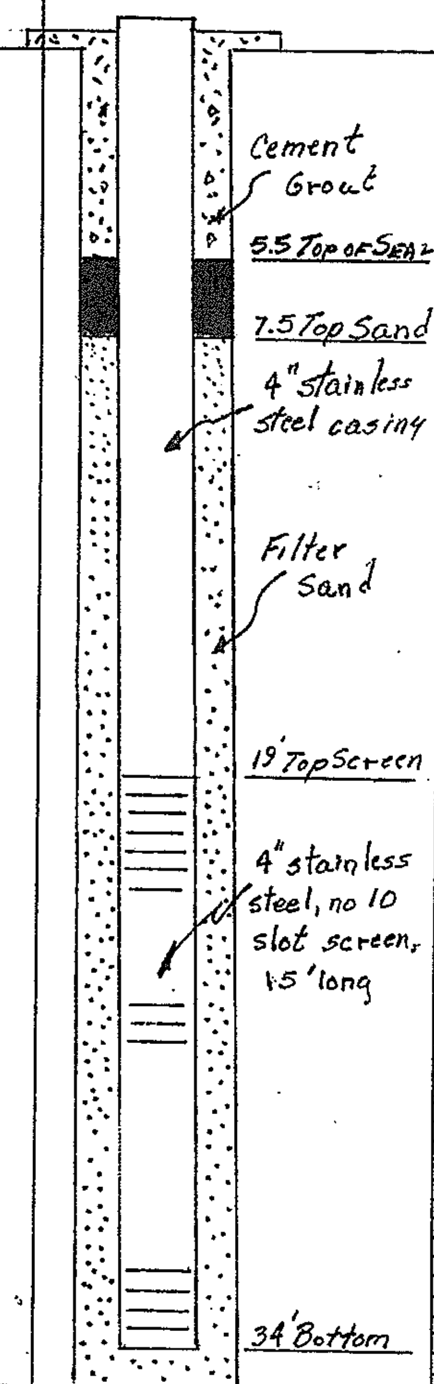
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	SPT	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
						TOP OF CASING; Metal COVER
157.2	0		SM light to medium gray, slightly silty fine sand			
						2.5 TOP OF BENTONITE; 3/8" chips
			SP white fine sand			
WL 9Sept98	4		SM/SC medium gray to pink very slightly silty & clayey fine sand			4.5 TOP OF FILTER; TOP OF SCREEN
			SC medium gray, medium sand with minor light gray clay lenses, interlayered sand layers with clayey sands.			MEDIUM QUARTZ SAND
	8					No10 slot, 2" PVC
	12					PLUG
141.2	16					BOTTOM SCREEN
			Bottom of Hole			

EARL F. TITCOMB, JR.
CONSULTANT IN GEOLOGY

RW1R

DRILLING LOG	COMPANY: MANOR TIMBER Co	INSTALLATION: ARGYLE, GA.	SHEET 1 OF 1 SHEETS
LOCATION (Coordinates or Station)		SIZE AND TYPE OF BIT: 6" Fishtail	
DRILLING AGENCY: EFT INC.		TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: None	
THICKNESS OF OVERBURDEN: NA		DATE HOLE: STARTED 11 Oct 1997	COMPLETED 11 Oct 1997
DEPTH DRILLED INTO ROCK: NA		ELEVATION TOP OF HOLE: 157.54 msl TOC	
TOTAL DEPTH OF HOLE: 35.0'		ELEVATION GROUND WATER: 150.71 msl 22 Jan 98	
NAME OF DRILLER: EARL TITCOMB		SIGNATURE OF INSPECTOR OR GEOLOGIST: Earl F. Titcomb	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	SPT	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	0		SC orange silty clayey sand			
			SM light gray slightly silty fine sand			
	5		SC light gray slightly clayey fine sand			
	10					
	15					
	20					
			SC/SM very pale brown very slightly clayey fine to coarse sand. (10YR 8/4)			
	25					
	30					
	35					
			BOTTOM OF HOLE 35'			



Project No:

Project: RCRA Compliance

Client: Manor Timber Company

Location: Argyle, Georgia

Well ID: RW-2

Enclosure:

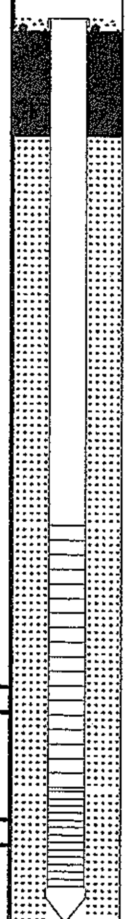
Geologist: Earl Titcomb, Jr., P.G.

SUBSURFACE PROFILE

Depth	Symbol	Description	Sample No.	OVA (ppm)
		Ground Surface		
0		*SC* Light gray fine to coarse sand with clay layers at 15 to 17 feet bgs		
25		*CL* Light gray and yellow sandy clay	S1	
		SC/SM Light gray-yellow gray fine to coarse angular sand		
30		*SC* Light orange-gray slightly clayey fine to coarse sand	S2	
35		*SC* Orange slightly clayey coarse sand		

Depth scale: 0, 5, 10, 15, 20, 25, 30, 35

Well Construction



Remarks

1.3' of Stick-Up (not shown)
Top of Seal at 0.5' bgs

Top of Filter Sand

20-feet of Stainless Steel Riser

Top of 5-foot No. 20 Screen

Top of 10-foot No. 10 Screen

Total Well Depth = 34.0' bgs

Notes: Drilled to 39.1 feet with a 5-inch fishtail bit - well set at 34.0 feet bgs

bgs = below ground surface

Drilled By: E. Titcomb Jr., P.G.

Drill Method: Mud Rotary

Drill Date: 11-1-02

Environmental Field Technology
EFT INC

Hole Size: 7 1/2-inch O.D.

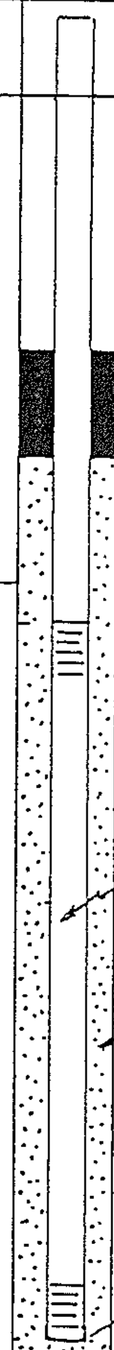
EARL F. TITCOMB, JR.
CONSULTANT IN GEOLOGY

AB1

DRILLING LOG	COMPANY MANOR TIMBER CO	INSTALLATION ARGYLE, GA.	SHEET 1 OF 1 SHEETS

LOCATION (Coordinates or Station): SE corner old pond	SIZE AND TYPE OF BIT: 5" hand auger
DRILLING AGENCY: EFT Inc	TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: 8
THICKNESS OF OVERBURDEN: NA	DATE HOLE — STARTED: 6 Apr 91 — COMPLETED: 6 Apr 91
DEPTH DRILLED INTO ROCK: NA	ELEVATION TOP OF HOLE: 158.9 msl
TOTAL DEPTH OF HOLE: 15.8'	ELEVATION GROUND WATER: 155.66 1 June 91
NAME OF DRILLER: MINTON	SIGNATURE OF INSPECTOR OR GEOLOGIST: Earl F. Titcomb Jr.

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
				— 161.11' stick up 2.2'
158.9	0		SM gray silty fine sand	Note: Set 6' of 6" casing to maintain hole during drilling. Pulled as filter was emplaced. Left some in place.
			1.5 to 3.0 black to gray mottled	
	2			Top of Seal 2.6'
WL 155.66 1 June 91			3.0 to 5.0 light gray	Baroid Holeplug
	4			Top of Filter 3.7
			SM-SC mottled orange-red-gray, silty slightly clayey sand, slight odor	Top of Screen 5.4
	6			
			light gray silty medium sand very slightly clayey	
	8		8.5 mottled light gray and reddish orange	2"x10' Monoflex Screen .010" slot
	10		SC gray & orange clayey sand very stiff	silica sand, 16.20 "Coastal Aggregates"
	12		11.5 more sandy, light gray, Note: change scale at 10'	
	14			cap
	16		Total Depth 15.8'	
	18			



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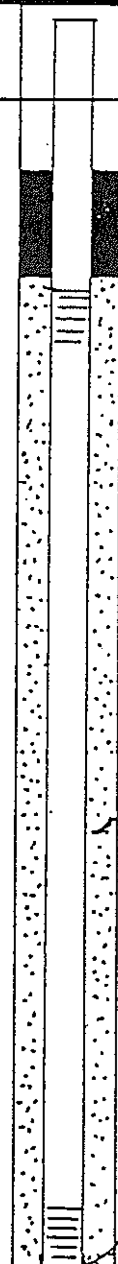
AB2

DRILLING LOG	COMPANY Manor Timber Co	INSTALLATION Argyle GA	SHEET 1 OF 1 SHEETS
LOCATION (Coordinates or Station) NE corner of old pond		SIZE AND TYPE OF BIT 5¼" hand auger	
DRILLING AGENCY EFT Inc		TOTAL NO. OF OVERBURDEN SAMPLES TAKEN	
THICKNESS OF OVERBURDEN NA		DATE HOLE STARTED 6 Apr 91	COMPLETED 6 Apr 91
DEPTH DRILLED INTO ROCK NA		ELEVATION TOP OF HOLE 156.0' msl	
TOTAL DEPTH OF HOLE 12.0'		ELEVATION GROUND WATER 155.70' 1 June 91	
NAME OF DRILLER Mintan		SIGNATURE OF INSPECTOR OR GEOLOGIST Earl F. Titcomb	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	BOX OR SAMPLE NO	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
					158.96 msl stick Up 2.96'
156.0	0		SM black silty fine sand		
			SC orange-red, clayey silty medium sand, fill (clay cap)		Top of Seal 0.7' Bariod "Holeplug" Top of Filter 1.8'
	2				
			SM-SC dark gray to black with roots, fibers etc at 5.0' silty sand with clay, sour odor. Water about 3'		
	4				
	6		SM-SC light gray clayey medium sand, sour odor sheen on water.		Filter sand, No 20
	8				
	10		SC light gray medium sand, clayey.		
			SP-SC light gray slightly clayey fine to medium sand		cap
	12		Total Depth 12.0'		



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AB3

DRILLING LOG	COMPANY: MANOR TIMBER Co	INSTALLATION: ARGYLE GA.	SHEET 1 OF 1 SHEETS
LOCATION (Coordinates or Station): NE corner old pond		SIZE AND TYPE OF BIT: 5" auger	
DRILLING AGENCY: EFT INC		TOTAL NO. OF OVERBURDEN SAMPLES TAKEN:	
THICKNESS OF OVERBURDEN: NA		DATE HOLE: STARTED 3 May 91	COMPLETED 3 May 91
DEPTH DRILLED INTO ROCK: NA		ELEVATION TOP OF HOLE: 155.8'	
TOTAL DEPTH OF HOLE: 15.0'		ELEVATION GROUND WATER: 155.59' 1 June 91	
NAME OF DRILLER: MINTON		SIGNATURE OF INSPECTOR OR GEOLOGIST: Earl F. Titcomb	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)			REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)

- Top of casing: 157.22, stick up 1.42'
- Elevation 155.8, Depth 0
- SM gray organic silty sand
- SC orange clayey sand cap material — Top of Seal 1.1' "Benseal"
- SM gray silty very fine sand — Top of Filter 1.9'
- Depth 2
- SM-SC gray silty, clayey fine to medium sand, odor — Top of Screen 3.8'
- Depth 4
- SC gray clayey fine to medium sand, clay ~~pale~~ blue-gray color.
- Depth 6
- Silica Sand, No. 20 Coastal Aggregates
- Depth 8
- 2" PVC screen, .010" slot "Monoflex"
- Depth 10
- Depth 12
- Depth 14 — cap
- Depth 15: CL gray sandy clay

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AB 4

DRILLING LOG	COMPANY: MANOR TIMBER Co	INSTALLATION: ARGYLE, GA	SHEET 1 OF 1 SHEETS
LOCATION (Coordinates or Station): E. of pond - near MW2		SIZE AND TYPE OF BIT: 5" Auger	
DRILLING AGENCY: EFT Inc		TOTAL NO. OF OVERBURDEN SAMPLES TAKEN:	
THICKNESS OF OVERBURDEN: NA		DATE HOLE: STARTED 3 May 91	COMPLETED 3 May 91
DEPTH DRILLED INTO ROCK: NA		ELEVATION TOP OF HOLE: 156.7' msl	
TOTAL DEPTH OF HOLE: 10.6'		ELEVATION GROUND WATER: 155.96, 1 June 91	
NAME OF DRILLER: MINTON		SIGNATURE OF INSPECTOR OR GEOLOGIST: Earl F. Titcomb Jr	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	SPT	BOX OR SAMPLE NO	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
						158.49 stick up 1.79'
156.7	0		SC mottled orange-red gray clayey sand			
155.96 1 June 91			SM gray silty sand			Top of Seal 1.0' "Benseal"
	2		SM gray silty medium to fine sand			Top of Filter 2.2' Top of Screen 3.1'
	4		SM-SC gray silty-clayey fine to medium sand.			No 30 silica sand Scruggs Sand Co.
	6					
	8					2" PVC, .010" slot
	10					cap
			Total Depth 10.6'			

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AB 5

DRILLING LOG	COMPANY MANOR TIMBER Co	INSTALLATION ARGYLE GA.	SHEET 1 OF 1 SHEETS

LOCATION (Coordinates or Station) 75' NW of old pond	SIZE AND TYPE OF BIT 5" hand auger
DRILLING AGENCY EFT Inc	TOTAL NO. OF OVERBURDEN SAMPLES TAKEN
THICKNESS OF OVERBURDEN NA	DATE HOLE STARTED 4 May 91 COMPLETED 4 May 91
DEPTH DRILLED INTO ROCK NA	ELEVATION TOP OF HOLE 157.7 msl
TOTAL DEPTH OF HOLE 13.5	ELEVATION GROUND WATER 156.03', 1 June 91
NAME OF DRILLER MINTON	SIGNATURE OF INSPECTOR OR GEOLOGIST Earl F. Titcomb, P.G.

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	SPT	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
						159.83
						Stick Up 2.13'
157.7	0		SM black to gray silty fine sand			Top of Seal 1.0' B.G.
WL 156.03 1 June 91						"Benseal"
	2		SM light gray slightly silty fine sand			Top of Filter 2.6'
						Top of Screen
	4		SM-SC tan to orange silty clayey fine to medium sand			
	6		SM tan, slighty silty medium sand			Silica sand, No. 30 Scruggs Sand Co.
	8					2" x 10', Monoflex screen, .010"
	10		SC gray very clayey sand 10-30% clay. Becomes less clayey at 11.0'.			
	12					cap
			Total Depth 13.5'			

Appendix B4

Ground Water Flow and Rate

Contouring of data taken from 1991 to 1996 confirms that changes in gradient occur at Manor Timber Company during periods of heavy winter rain. This change in gradient direction had previously been noted; however, the data now available confirms that these changes do occur. The 24 Nov 91 contours shown on Figure E-1 shows a gradient away from the waste management area (WMA) in a northeast, north, southeast, and south direction based primarily on the gradients measured between wells MW15 (AB4) and MW2, and MW3A and MW3. Although no data points existed at that time west of MW4A (on the western limit of the WMA) it appeared there may have been a gradient toward the west. Later, especially in January 1992, very heavy rains occurred in the area (see Table E-1) and contouring of data from 20 Feb 1992 (Figure E-2) shows flow toward the WMA from every direction. Two additional wells, MW9 and MW10, were added in early February, northeast and southeast respectively of the WMA. These wells along with the MW15 (AB4)-MW2 and MW3A-MW3 well pairs showed inward flow gradients toward the WMA. The AB5-MW1A pair has shown flow toward the WMA throughout this entire period and up to the present. During spring the rainfall was lower than in January, and by early June there was a partial reversal of gradient. By 23 June all flow from the WMA as measured from the four well pairs; MW16 (AB3)-MW9, MW15 (AB4)-MW2, MW6-MW10 and MW3A-MW3 was again away from the WMA. This outward gradient has continued up to present, and the installation of MW13 west of the WMA also indicates a gradient, although much lower, generally in a westerly direction. The ground water contours for 15 July 1995 and 21 January 1995 are shown on Plates E-1 and E-2, respectively. As noted above, the gradient at the northwest corner, as reflected by AB5 and MW1A has always been toward the WMA (see Table E-2). The relatively heavy summer rains, as experienced in June, July, and August 1992 did not create the flow reversal effect of the winter rains, probably due to evaporation and transpiration. Water level data for the 1991 through 1996 period is contained in Tables E-3 found at the end of this subsection.

TABLE E--2

MANOR TIMBER COMPANY
GRADIENT CALCULATIONS AB5 TO MWIA

DATE	AB - 5 WATER LEVEL	MWIA- WATER LEVEL	DIFFERENCE	GRADIENT
I Jun 91	156.03'	155.71'	.32	.005
13 Sept 91	154.53	154.43	.10	.001
2.7 Oct 91	153.19	153.04	.15	.002
11 Nov 91	152.56	152.40	.16	.002
24 Nov 91	152.26	152.04	.22	.003
3 Feb 92	157.69	156.34	.35	.005
20 Feb 92	156.96	156.53	.43	.006
2 June 92	155.12	154.49	.63	.009
23 June 92	156.50	155.34	1.16	.017
24 July 92	155.97	154.78	1.19	.018
31 Aug 92	155.30	154.89	.41	.006
15 Oct 92	154.29	153.86	.43	.006

Ground water flow determinations for the period 17 Feb 1987 through 12 May 1990 are contained in Appendix C, "Slug Tests, Water Levels, and Sampling Procedures at Manor Timber Company, Clinch County, Georgia." This report, by Paul N. Clawson, revised in July 1990, shows the ground water flow varying seasonally "from 30° north of east to 200 south of east." These flow directions are essentially the same as found in contouring the water table elevations from 15 July 1995 (see Plate E-1). The new data points have resulted in a more complex picture than that based on earlier data. The January 1995 data shown on Plate E-2 indicates flow toward the northeast and west (not shown on some of the earlier interpretations). It was also noted in the July 1990 report that flow, during the period that the pond was in operation, was toward the south and southeast. Due to the above noted changes, rates of movement from (or towards) the closed impoundment are highly variable. Using the southward gradient from MW5 to MW8, .003, and the K value, determined from slug tests, of 3.25 feet/day, and assuming an average effective porosity of .25, and substituting in the formula V = Ki/N we get:

```
V = 3.25 x .003 x 365 =14.2
           feet/year. .25
```

This value compares well with the actual approximate horizontal movement of naphthalene in both the easterly and southerly directions. The plume boundary appears to be near MW8 or about 250 feet from the southern margin of the closed impoundment. This well has had very low levels of naphthalene, but in the last events there were no constituents found above detection limit. Using the figure calculated above and multiplying by the years since the impoundment was first used (20) gives a maximum distance of 284 feet. However, since we have seen flow reversals in at least three directions this past year, it is not reasonable to assume a constant gradient. The close agreement between the measured and calculated values is likely coincidence.

The contamination south of the WMA may also be a reflection of the ground water flow when the impoundment was in operation. At the present time, there appears to be only a small component of flow in a southerly direction. There is generally a southwesterly gradient, but there is little data to confirm or refute this supposition. MW13, on the western edge of the plant area has generally indicated a very low gradient from MW4A or MW4B, since its installation in May 1992. However, during the last three sets of water level data from July 1995 through April 1996, there has been a slight gradient toward the west. MW4B is located about 20 feet horizontally from the recovery well MW4A and may reflect drawdown due to pumping of this well.

The installation of MW17 and the conversion of AB3 and AB4 to monitoring wells MW16 and MW15, respectively, has not changed the interpretation of ground water flow, but has revealed that the northern boundary has more contamination than previously thought. This is discussed in paragraph 3.C. of this subsection.

Appendix B5

GEORGIA
ENVIRONMENTAL PROTECTION DIVISION

HAZARDOUS WASTE MANAGEMENT PROGRAM
GROUNDWATER TESTING
APPENDIX IX

GEORGIA MODIFIED STANDARD METHOD

Revised Febuary 1991

DEPARTMENT OF NATURAL RESOURCES

TABLE OF CONTENTS

INTRODUCTION

Development of EPD Guidance For App. VIII (IX) Groundwater Testing

When a facility's monitoring wells have failed the contamination indicator tests it is a reasonable assumption that some toxic compound has entered the groundwater. However, very little is known about the nature of the compound and how much is present. The industry is faced with testing for some 250 toxic substances and will be regulated, at considerable cost, based on the levels found. Additionally, health-based drinking water limits are now specific for many chemicals and are set very low. There is, therefore, an immediate need to assure that the test procedures are reliable, that they indicate what is actually coming from the site, and that the levels found are true concentrations.

In 1985 when groundwater testing became an urgent issue many of the standard tests had never been verified for the additional compounds on the Appendix VIII list. Mounting a sampling and testing project of this size was unprecedented, and it was found that some established methods, while useful for a few suspected chemicals, presented problems when used for large groups. Such things as false positive results, especially around the lower detectable limits, incorrect identification, and the possibility of overlooking a chemical, caused concern among many experienced analytical chemists working in the field. EPA Manual SW846 did not cover these special problems, but addressed individual chemical analysis.

In order to assist industries under compliance orders the Georgia EPD developed a comprehensive test plan designed to achieve the greatest number of verified results in the most cost effective manner, and in the shortest possible time. It was a careful selection of methods calculated to overcome as many problems as possible, and was offered to industry as the Georgia Modified Standard Method (GMSM) in early 1985. This plan was approved by EPA Region IV and distributed to other states. Following this the Georgia EPD was awarded a Federal Grant to test out the GMSM in the field to determine what problems, if any, still existed with this method.

Since that time many of the ideas and theories proposed in the GMSM have been corroborated. However, some problems still exist, and the methods continue to be improved to overcome interferences, and to reach the health based drinking water limits. The GMSM revision which follows is based on an improved EPA Manual SW846 Edition III dated November, 1986 and updates. The Division stresses that the GMSM may not be the only acceptable plan but any plan submitted for approval must be of equivalent quality.

Method Selection

The 250 compounds of Appendix IX fall out into general groups, many of which are readily testable by established procedures:

a) Gas Chromatographic (GC) Methods have long been standardized and are very good for many pesticides. The new pesticides required for Appendix IX were added to these GC Methods.

b) Metals analyses can be performed by ICP to save time (and therefore money). The Atomic Absorption (AA) Method using Graphite Furnace yields the most sensitive test, and in the situation of testing contaminated groundwater, it should be used to provide the lowest detection limits. Due to interferences which may be present the GMSM leaves the choice of method to the analytical chemist.

c) The cyanide and sulfide tests are standard in Manual SW 846 III. The EPD considers that "potentially dissociable" cyanides are potentially toxic. The agency also maintains surveillance of the quantity of bound (non-dissociable) iron cyanide and Method 9010 determines both of these.

d) The Chlorinated Dioxins, and Furans tests require EPA Method 8290 in order to achieve the low detection limits mandated by extreme toxicity.

e) The formaldehyde test is one the Division has been concerned with because of the prevalence of this chemical in industrial waste. The method which the Division requires was adapted and improved within the Georgia EPD, based on available literature.

The remaining chemicals are organics including solvents, oils, cleaners etc. and it is here that the testing of large groups provides the greatest difficulty:

f) The list of volatile organic compounds can be scanned very effectively by the GC-MS (Mass Spectrometer), and with a wide or narrow bore capillary column can achieve very low detection limits (Method 8260, see page 9). This instrument can positively identify a compound in one test run. It may be possible to use other methods, however, the lower detectable limits may not be comparable in all cases.

g) The same can be said for the much larger list of semi-volatile compounds. (see page 22, Method 8270) Some of these compounds are difficult to analyze for at best, and the assignment of method in manual SW 846, Edition III may be revised at a future time.

References to tentativeness can also be found in the footnotes contained in the Appendix IX Federal Register (July 9, 1987). Note that for 79 of these organic compounds only the GC-MS methods (8240, 8270) have been verified sufficiently to be recommended. For other compounds more than one method is listed, however one of the lower detection limits may be too high to be useful in this situation. Recent advances have established Method 8260 as superior to Method 8240 and should be used for groundwater.

In any test plan an important factor is the positive identity of the contaminant. Under an Appendix IX testing project any organic positive found by another method must be confirmed by the GC-MS instrument if possible as stated in the Manual SW846 III methods.

Additionally, in any test plan the lower detectable limit of the method selected should be an important factor. For example, it is not useful to report a lower limit of 100 ppb when the health based limit for drinking water is 10 ppb. For some exotic compounds it is not yet possible to test in the range of the health-based standard, and the technology is limited to verifying that a contaminant is not present to the lowest achievable level.

At the present time the lowest test limits listed in Manual SW846 III for groundwater will be a criterion for judging aceptable work. At such time as specific limits are published by EPA for Appendix IX testing these will be adopted by EPD.

In presenting the following test plan the Division is providing what it considers the best compromise between lower detection limits and positive identification. The GMSM reflects the recommendations of Chapter Two and Chapter Eleven of Manual SW846. Any plan submitted for approval must provide equal sensitivity.

Laboratory Selection

The facility should bear in mind that the large list of unknowns presents unique test problems for the analyst and it is advisable to select a lab that is experienced in this aspect of laboratory testing. In other groundwater test situations, when a contaminant is known to be a member of a small group, a method can be selected which may be cheaper and quicker in that situation. (Refer to Chapter Two, 2.2.5, and figure 2.2 of Manual SW846 III).

The industry should also be aware that occasionally parts of the Appendix IX work may be subcontracted by the laboratory. The Division has no objection to this providing required holding times are maintained. However, the facility is advised that this could cause delays in shipment and cold storage which can alter the integrity of the sample. There may also be little knowledge about the quality control procedures of the subcontractor and these should be verified.

EPD does not have a lab. certification program and the industry should investigate the available laboratories and determine what course it wishes to pursue. The following are some questions which may be helpful:

a. What is your general quality control program plan? Submit recent test data on lower detectable limits, spike recoveries, duplicates, and method blanks. How are you determining your lower detectable limit for organics in groundwater?

b. Submit a quality assurance plan for my wells. Explain exactly how you will verify your test results.

c. Do you have the instruments to perform the work by approved methods? Do you intend to subcontract part of the work? If so provide verification of their qualifications and QA-QC.

d. Will you sample the wells? Have you received training from EPA or Georgia EPD on correct technique? Do you have a copy of the EPD Monitoring Well Sampling Procedure?

e. Are you familiar with the required preservation and holding time limits for my groundwater samples?

f. Do you have a copy of SW 846 Edition III? Are you familiar with the chapters on Quality Control and Method Selection, and will you carry out the QC measures stipulated in the methods and report them? Are you aware of the new holding times (Chapter Eleven, groundwater)?

g. Do you have on hand all standards required for the Appendix IX tests?

h. Provide the names of some customers whom you have recently done business with in groundwater testing. Have you previously performed a complete Appendix IX project?

i. Do you participate in any testing of known samples provided by EPA or a State? Furnish copies of evaluations.

j. If you are certified under any environmental program, describe and provide date of most recent approval.

GEORGIA MODIFIED STANDARD METHOD

1. When it is established in a facility's groundwater monitoring system that a statistically significant increase has occurred in the indicator parameters, it becomes necessary to determine the concentration of all hazardous compounds listed in Chapter 391-3-11-.10, Part 264, Appendix IX of the Georgia Rules. Refer to appropriate regulations Part 264 and 270.

2. The Georgia EPD requires that the list of Chemicals adopted in the Hazardous Waste Management Act as Appendix IX be tested along with any additions published subsequently by the US EPA. The Divison retains the authority to add compounds which it considers applicable to a particular case.

3. The Third Edition of EPA Manual SW 846 dated November 1986, and any updates, shall be used for this testing. The generator and the selected laboratory are directed specifically to the chapters "Quality Control" and "The Correct Procedure," and to chapter eleven on "Groundwater." This manual provides guidance for both wastes and water, and the method procedures and standards applying to groundwater shall be used, except where discretionary changes or additions have been approved by Georgia EPD as indicated in the following sections.

4. Per the Federal Register 7/9/87 and manual SW846 III EPD has grouped the required compounds under the procedures which are considered most likely to yield the fewest false positives, and also provide lower detectable limits (LDL's) which are close to the health-based standards for drinking water. When searching for so many unknown compounds, these procedures are judged to overcome serious co-elution problems and provide the most accurate identification of contaminants without the need to resample and retest.

5. When groundwater interferences are present the analytical chemist is requested to select another approved method and retest, in order not to report excessively high, and therefore meaningless lower detectable limits. The Division will require this second method when it is known to exist, and this contingency should be built into the test plan. The need for deviation should be justified in the report.

6. <u>Reporting</u>
   An example report form has been provided at the end of this document. All information listed should be provided as applicable for the method. The laboratory should sign the Statement of Certification included on page 2 of the Report Form.

7. The following is a summary of recommended procedures. All compounds listed under each procedure have yielded good results (refer to page 20):

Procedure 1 — GC-MS
Volatile Compounds
Purge and Trap, Method 8260 for groundwater.

This test is best performed with a wide-bore (or narrow bore) capillary column. The Division advises that these should be employed.

Procedure 2 — GC - Method 8015 for 3 compounds

Procedure 3 — GC-MS
Extractable acid compounds
Extractable base/neutral compounds
Method 8270 (Capillary Column)

Procedure 4 — GC
a)Pesticides by Electron Capture
Organochlorine Method 8080

b)Herbicides by Electron Capture
Acid derivative Method 8150

c)Pesticides by Flame Photometric Detector
Organophosphorus Method 8140

Procedure 5 — AA, ICP, Cold Vapor
Metals
AA Furnace Method 7000
ICP Method 6010
Cold Vapor Method 7470, 7441

Procedure 6 — Cyanides, total and amenable
Method 9010

Procedure 7 — Sulfide
Method 9030

Procedure 8 — Formaldehyde
Derivitization Method, GC-MS Confirmation
(See Appendix III).

Procedure 9 — Dioxins
Method 8290 (requires HRGC-HRMS)

Procedure 10 — Fluoride
Method 129-71W (EPD Lab.)

DESCRIPTION OF REQUIREMENTS FOR SELECTED METHODS

I. Organic Analyses

The analytical chemist is referred to Method 8000 for general information, and then to the specific methods for quality control requirements applying to groundwater.

The laboratory shall use proven instruments and techniques to identify and quantify the listed volatile, semi-volatile, and pesticide compounds. The laboratory shall extract and concentrate sample extracts to achieve required detection limits using the approved methods.

The Internal Standard Calibration shall be used throughout. The samples shall be spiked as described and the recoveries reported in the lab report.

Volatile analyses shall be performed within 7 days of collection. All organic sample extractions shall be performed within 5 days of collection. (one extra day for shipment if needed.) Other organic analyses should be completed within 30 days of receipt in the laboratory. These dates of collection, receipt, and testing shall be reported in the lab report.

Calibration (GC-MS)

(a) The GC-MS instrument shall be tuned daily on DFTPP and BFB.

(b) Linearity of response shall be determined using 5 concentrations of the internal standards.

(c) Each 12 hours a single midpoint check is to be run to determine whether it is within limits.

Surrogate standards shall be added to each sample blank and matrix spike before purging or extracting to monitor the preparation.

All volatile extracts and semi-volatile extracts shall also be spiked with internal standards before purging or injecting. These are listed in the method.

Qualitative verification shall be made according to 2 criteria:

(a) GC retention time (RRT) is the same as the standard. The sample RRT must compare within 0.06 RRT units with the standard RRT. The standard must be run within the same 12 hour period.

(b) The GC-MS spectrum of the sample is the same as the standard. The standard spectra must have been obtained on the laboratory's instrument, and can be used only after the instrument has been tuned using DFTPP and BFB per the method requirement.

Quantitation shall be performed using the internal standard method and utilizing a response factor (RF) as required in the procedure. The standard of the identified compound must be run before and after the sample, and a comparison made to determine concentration in the sample. The RF must be within 20% of the RF used for quantitation.

All pesticides identified in the required procedures shall be confirmed by GC-MS. Toxaphene, Chlordane and PCB Aroclor standards shall each be separate standard solutions.

One spiked downgradient sample (matrix spike) analysis shall be performed per each 20 samples run. If this spike is on the subject sample this shall be reported since recoveries are especially meaningful for that facility. A minimum of 12 of the semi-volatiles shall be run as a matrix spike.

A library search shall be executed for other organic compounds for the purpose of tentative identification. The EPA/NIH Mass Spectral library shall be used. Substances with responses less than 10% of the internal standard need not be reported. An estimated concentration may be made using the nearest internal standard free of interferences. This shall be reported as "estimated".

Method Blank

A blank shall be run through all procedures, and reported.

When no target compound is found report the method detection limit and also the instrument detection limit for that run.

All Quality Control work including blank, matrix spike and surrogate recovery shall be reported for each procedure. Additionally report the lower detection limit achieved for clean water.

Lower Detection Limit (LDL)

A list of required lower detection limits on clean water without interferences is provided. Some compounds required by the Divison may not yet have an established limit. In this case report the limit found.

These limits are compiled from the SW 846, III Methods and the EPA Contract Lab Program established under Superfund. They are reasonable levels and in many cases can be improved.

Instrument Detection Limit (IDL)

This is essentially 3 times the noise.

1. Run the standard curve.
2. Run seven reagent water blanks and calculate the standard deviation (S) of the responses.

   Average $(\bar{X}) = \dfrac{\sum X}{7}$ $S = \sqrt{\dfrac{\sum_{i=1}^{7} (\bar{X} - X_i)^2}{6}}$

3. Determine the level on the standard curve which is 3 times the standard deviation (S). This is the instrument detection limit.

Method Detection Limit (MDL)

1. Prepare a spike of the analyte into reagent water that corresponds to the calculated Instrument Detection Limit. It should be as close as possible to this limit.

2. Take 7 aliquots and process each through the sample work-up.

3. Analyze and determine concentration in the usual manner.

4. Calculate the standard deviation (S) as above.

5. The MDL = $t_{.99}S$

   = 3.143(S) for 7 aliquots.

NOTE:

If the subject sample contains interferences and requires a dilution, adjust the reported MDL to include this dilution.

Interferences

When a compound is found to interfere in the prescribed method, and the detection limit is raised by dilution so as to obscure other listed compounds, the GMSM requires that the sample be tested by another EPA approved method which will overcome the interference if the method exists. This condition shall be noted in the lab report with the name of the alternate method. Reporting of extremely high LDL's when another approved method is known will not be acceptable to the Division.

Reagent Blank

1. For the common lab. solvents the reagent blank must not contain more than 2x the required detection limit. These are: Methylene Chloride, Acetone, Methyl Ethyl Ketone, 1,4 Dioxane.

2. For the common phthalate esters the reagent blank must not contain more than 2x the required detection limit.

3. For all other organics the reagent blank should contain less than the required detection limit.

4. If the reagent blank has been subtracted to arrive at the result, this fact must be noted in the report.

RECOVERY LIMITS

Acceptable recovery limits for Surrogate Standards and Matrix Spikes are as follows:

SURROGATE SPIKE RECOVERY LIMITS

Fraction	Surrogate Compound	Well Water %
VOA	Toluene-d_8	86-119
VOA	4-Bromofluorobenzene	85-121
VOA	1,2-Dichloroethane-d_4	77-120
BNA	Nitrobenzene-d_5	41-120
BNA	2-Fluorobiphenyl	44-119
BNA	p-Terphenyl-d_{14}	33-128
BNA	Phenol-d_5	15-103
BNA	2-Fluorophenol	23-121
BNA	2,4,6-Tribromophenol	10-130
Pest.	Dibutylchlorendate	48-136

MATRIX SPIKE RECOVERY LIMITS

Fraction	Matrix Spike Compound	Well Water %
VOA	1,1-Dichloroethene	61-145
VOA	Trichlorethene	71-120
VOA	Chlorobenzene	75-130
VOA	Toluene	76-125
VOA	Benzene	76-127
BN	1,2,4-Trichlorobenzene	39- 98
BN	Acenaphthene	46-118
BN	2,4-Dinitrotoluene	24- 96
BN	Di-n-butyl Phthalate	11-117
BN	Pyrene	26-127
BN	N-Nitroso-Di-n-Propylamine	41-116
BN	1,4-Dichlorobenzene	36- 97
Acid	Pentachlorophenol	9-103
Acid	Phenol	12- 89
Acid	2-Chlorophenol	27-123
Acid	4-Chloro-3-Methylphenol	23- 97
Acid	4-Nitrophenol	10- 80
Pest.	Lindane	56-123
Pest.	Heptachlor	40-131
Pest.	Aldrin	40-120
Pest.	Dieldrin	52-126
Pest.	Endrin	56-121
Pest.	4,4'-DDT	38-127

HAZARDOUS SUBSTANCES
REQUIRED METHOD DETECTION LIMITS

Clean Well Water

Volatiles	Wide Bore ug/L	Narrow Bore ug/L
Acetone	10.0	
Benzene	0.04	0.03
Bromochloromethane	0.04	0.09
Bromodichloromethane	0.08	0.03
Bromoform	0.12	0.20
Bromomethane	0.11	0.06
2 Butanone	10.0	
Carbon tetrachloride	0.21	0.02
Chlorobenzene	0.04	0.03
Chloroethane	0.10	0.02
2 Chloroethyl Vinyl Ether	10.0	
Chloroform	0.03	0.04
Chloromethane	0.13	0.05
Dibromochhloromethane	0.05	0.07
1,3 Dibromoethane	0.06	0.10
Dibromomethane	0.24	0.01
Dichlorodifluoromethane	0.10	0.11
1,1 Dichloroethane	0.04	0.03
1,2 Dichloroethane	0.06	0.02
1,1 Dichloroethene	0.12	0.05
Cis 1,2 Dichloroethene	0.12	0.06
Trans 1,2 Dichloroethene	0.06	0.03
1,3 Dichloropropane	0.04	0.08
1,2 Dichloropropane	0.04	0.02
2,2 Dichloropropane	0.35	0.08
1,1 Dichloropropene	0.10	0.12
Cis 1,3 Dichloropropene	5.0	
Trans 1,3 Dichloropropene	5.0	
Ethyl benzene	0.06	0.03
2 Hexanone	10.0	
Isopropyl benzene	0.15	0.10
4 Methyl - 2 - Pentanone	10.0	
Styrene	0.04	0.27
1,1,2,2 Tetrachloroethane	0.04	0.20
1,1,1,2 Tetrachloroethane	0.05	0.07
Tetrachloroethene	0.14	0.05
Toluene	0.11	0.08
1,1,1 Trichloroethane	0.08	0.04
1,1,2 Trichloroethane	0.10	0.08
Trichlroethene	0.19	0.02
Trichlorofluoromethane	0.08	0.07
1,2,3 Trichloropropane		0.09
Vinyl Acetate	10.0	
Vinyl Chloride	0.17	0.04
P-Xylene	0.13	0.06
m-xylene	0.05	0.03
o-xylene	0.11	0.06

Semi-Volatiles (Extractables)	Detection Limits Well Water ug/l
N-Nitrosodimethylamine	10
Phenol	10
Aniline	10
bis (2-Chloroethyl) ether	10
2-Chlorophenol	10
1,3-Dichlorobenzene	10
1,4-Dichlorobenzene	10
Benzyl Alcohol	10
1,2-Dichlorobenzene	10
2-Methylphenol	10
bis (2-Chloroisopropyl)ether	10
4-Methylphenol	10
N-Nitroso-Dipropylamine	10
Hexachloroethane	10
Nitrobenzene	10
Isophorone	10
2-Nitrophenol	10
2,4-Dimethylphenol	10
Benzoic Acid	50
bis (2-Chloroethoxy) methane	10
2,4-Dichlorophenol	10
1,2,4-Trichlorobenzene	10
Naphthalene	10
4-Chloroaniline	10
Hexachlorobutadiene	10
4-Chloro-3-methylphenol (para-chloro-meta-cresol)	10
2-Methylnaphthalene	10
Hexachlorocyclopentadiene	10
2,4,6-Trichlorophenol	10
2,4,5-Trichlorophenol	50
2-Chloronaphthalene	10
2-Nitroaniline	50
Dimethyl Phthalate	10
Acenaphthylene	10
3-Nitroaniline	50
Acenaphthene	10
2,4-Dinitrophenol	50
4-Nitrophenol	50
Dibenzofuran	10
2,4-Dinitrotoluene	10

Semi-Volatiles (Extractables) Cont'd	Detection Limits Well Water ug/l
2,6-Dinitrotoluene	10
Diethylphthalate	10
4-Chlorophenyl Phenyl ether	10
Fluorene	10
4-Nitroaniline	50
4,6-Dinitro-2-methylphenol	50
N-nitrosodiphenylamine	10
4-Bromophenyl Phenyl ether	10
Hexachlorobenzene	10
Pentachlorophenol	50
Phenanthrene	10
Anthracene	10
Di-n-butylphthalate	10
Fluoranthene	10
Benzidine	80
Pyrene	10
Butyl Benzyl Phthalate	10
3,3'-Dichlorobenzidine	20
Benzo(a)anthracene	10
bis(2Oethylhexyl)phthalate	10
Chrysene	10
Di-n-octyl Phthalate	10
Benzo(b)fluoranthene	10
Benzo(k)fluoranthene	10
Benzo(a)pyrene	10
Ideno(1,2,3-cd)pyrene	10
Dibenz(a,h)anthracene	10
Benzo(g,h,i)perylene	10

Pesticides	
alpha-BHC	0.05
beta-BHC	0.05
delta-BHC	0.05
gamma-BHC (Lindane)	0.05
Heptachlor	0.05
Aldrin	0.05
Heptachlor Epoxide	0.05
Endosulfan I	0.05
Dieldrin	0.10
4,4'-DDE	0.10
Eldrin	0.10
Endosulfan II	0.10

Pesticides Cont'd	Detection Limits Well Water ug/L
4,4'-DDD	0.10
Endrin Aldehyde	0.10
Endosulfan Sulfate	0.10
4,4'-DDT	0.10
Endrin Ketone	0.10
Methoxychlor	0.5
Chlordane	0.5
Toxaphene	1.0
ARCLOR-1016	0.5
ARCLOR-1221	0.5
ARCLOR-1232	0.5
ARCLOR-1242	0.5
ARCLOR-1248	0.5
ARCLOR-1254	1.0
ARCLOR-1260	1.0
Parathion	0.1
Silvex	0.1
2,4D	0.5
2,45T	0.5
Polychlorinated dibenzodioxins	0.01
Polychlorinated dibenzofurans	0.01

METALS	
Antimony	60
Arsenic	10
Barium	200
Beryllium	5
Cadmium	5
Chromium	10
Cobalt	50
Copper	25
Iron	100
Lead	5
Mercury	0.2
Nickel	40
Selenium	5
Silver	10
Thallium	10
Tin	40
Vanadium	50
Zinc	20

REPORTED DETECTION LIMITS FOR SPECIAL COMPOUNDS

The following have been achieved and are included as guidance for the analyst:

Procedure 1 (VOA)	ug/l
Acetonitrile	10
2 Chloro 1,3 butadiene (chloroprene)	5
3 Chloropropene	5
dibromomethane	5
dichlorodifluoromethane	5
Methacrylonitrile	5
Procedure 2	
1,4 dioxane	150 (10 by HPT)
isobutyl alcohol	50
Procedure 3 (A/BN)	
N nitrosomethyl ethylamine	10
isosafrole	10
Aniline	10
2 acetylamino fluorene	20
Benzidine	80
diphenylamine	10
dimethyl phenethylamine	10
2 sec butyl 4,6 dinitrophenol	20
Methyl methacrylate	10
N nitroso dimethylamine	10
2 picoline	10
m/p cresol	10
Procedure 4 (Pesticides by GC)	
Tetra ethyl dithio pyrophosphate (Sulfotepp)	7
Kepone	0.06
Isodrin	0.01
Endosulfan sulfate	0.10
Dimethoate	2

STANDARD SOLUTIONS

VOLATILES

Internal Standards

Bromochloromethane
1,4-difluorobenzene
Chlorobenzene d-5

Surrogates

Toluene-d_8
4-bromofluorobenzene
1,2 dichloroethane-d_4

Matrix Spiking Solution

Chlorobenzene
Toluene
Benzene
1,1-Dichloroethene
Trichloroethene

SEMI-VOLATILE, EXTRACTABLES

Internal Standards

1,4-Dichlorobenzene-d_4
Naphthalene-d_8
Acenapthene-d_8
Phenanthrene-d_8
Chrysene-d_{12}
Perylene-d_{12}

Surrogates

Phenol-5
2-Fluorophenol
2,4,6-Tribromophenol
d-5 Nitrobenzene
2-Fluorobiphenyl
Terphenyl

Matrix Spiking Solutions

Base/Neutrals

1,2,4-Trichlorobenzene
Acenaphthene
2,4-Dinitrotoluene
Di-n-butyl Phthalate
Pyrene
N-Nitroso-Di-n-Propylamine
1,4-Dichlorobenzene

Acids

Pentachlorophenol
Phenol
2-Chlorophenol
4-Chloro-3-Methylphenol
4-Nitrophenol

QUANTITATION OF ANALYTES ASSIGNED TO THE INDICATED INTERNAL STANDARDS

VOLATILES

Bromochloromethane	1,4-Difluorobenzene	Chlorobenzene-d_5
Chloromethane	2-Butanone	2-Hexanone
Bromomethane	1,1,1-Trichloroethane	4-Methyl-2-Pentanone
Vinyl Chloride	Carbon Tetrachloride	Tetrachloroethene
Chloroethane	Vinyl Acetate	1,1,2,2-Tetrachloroethane
Methylene Chloride	Bromodichloromethane	Toluene
Acetone	1,2-Dichloropropane	Chlorobenzene
Carbon Disulfide	trans-1,2-Dichloropropene	Ethylbenzene
1,1-Dichloroethene	Trichloroethene	Styrene
1,1-Dichloroethane	Dibromochloromethane	Total Xylenes
trans-1,2-Dichloroethene	1,1,2-Trichloroethane	Bromofluorobenzene (surr)
Chloroform	Benzene	Toluene-d_8 (surr)
1,2-Dichloroethane	cis-1,3-Dichloropropene	
1,2-Dichloroethane-d_4 (surr)	2-Chloroethyl Vinyl Ether	
	Bromoform	

SEMI-VOLATILE, EXTRACTABLES

4-Dichlorobenzene-d_4

N-Nitrosodimethyl-
amine
Phenol
Aniline
bis(2-Chloroethyl)
ether
anthene
2-Chlorophenol
1,3-Dichlorobenzene
1,4-Dichlorobenzene
Benzyl Alcohol
1,2-Dichlorobenzene
anthracene
2-Methylphenol
bis(2-Chloroiso-
perylene
propyl)ether
4-Methylphenol
N-nitroso-Di-n-
propylamine
Hexachloroethane
2-Fluorophenol
(surr)
ol-d_6

Naphthalene-d_8

Nitrobenzene
Isophorone
2-Nitrophenol
2,4-Dimethyl-
phenol
Benzoic acid

bis(2-Chloro-
ethoxy)methane
2,4-Dichloro-
phenol
1,2,4-Trichloro-

benzene
Naphthalene

4-Chloroaniline
Hexachloro-
butadiene
4-Chloro-3-
methylphenol
2-Methylnaphth-
alene
Nitrobenzene-d_5
(surr)

Acenaphthene-d_{10}

Hexachlorocyclo-
pentadiene
2,4,6-Trichloro-
phenol
2,4,5-Trichloro-
phenol

2-Chloronaphthalene
2-Nitroaniline
Dimethyl Phthalate
Acenaphthylene
3-Nitroaniline

Acenaphthene
2,4-Dinitrophenol

4-Nitrophenol
Dibenzofuran
2,4-Dinitrotoluene
2,6-Dinitrotoluene
Diethyl Phthalate
4-Chlorophenyl
phenyl ether
Fluorene
4-Nitroaniline
2-Fluorobiphenyl
(surr)
2,4,6-Tribromo
Phenol (surr)

Phenanthrene-d_{10}

4,6-Dinitro-2-
methylphenol
N-nitrosodi-
phenylamine
1,2-Diphenylhy-
drazine

4-Bromophenyl
Phenyl Ether
Hexachloro'
benzene
Pentachloro-

phenol
Phenanthrene

Anthracene
Di-n-butyl
Phthalate
Fluoranthene

Chrysene-d_{12}

Benzidine
Pyrene
Butylbenzyl
Phthalate
3,3'-Dichloro-
benzidine

Benzo(a)-
anthracene
bis(2-ethylhexyl)
-Phthalate
Chrysene

Terphenyl-d_{14}
(surr)

Perylene-d

Di-n-oct
Phthalat
Benzo(b)
anthen
Benzo(k)
anthen

Benzo(a)
Indeno(1
-pyrene
Diabenz(
anthracen

Benzo(g,h
Perylene

II. METALS ANALYSES

The analytical chemist is referred to method 7000 for general information and then to specific methods for quality control.

ICP (Method 6010) and Atomic Absorption (Furnace method Method 7000) from EPA Manual SW 846, III should be used. For Mercury the cold vapor method 7470 must be employed on an Atomic Absorption instrument or specially designed Mercury detector pre-approved by the Division.

The AA Furnace method is most sensitive. However, ICP is more interference-free. The choice of method is left to the analyst with the stipulation that the lowest possible detection limits should be achieved for the situations encountered.

a) Run one blank per sample batch. Do not subtract the blank.

b) Spike one downgradient sample from the facility being tested, and report percent recovery.

Do this for each metal tested.

c) Run the set of check standards after every 15 samples.

d) For any metal not detected report the Method lower detectable limit for that test.

METALS - Required Detection Limits

	ug/l
Antimony	60
Arsenic	10
Barium	200
Beryllium	5
Cadmium	5
Chromium	10
Cobalt	50
Copper	25
Iron	100
Lead	5
Mercury	0.2
Nickel	40
Selenium	5
Silver	10
Thallium	10
Tin	40
Vanadium	50
Zinc	20

e) Samples should be preserved on site with HNO_3 to pH less than 2 and may be held until convenient to test.

f) The regulations presently require evaluations based on total metals tests. If any attempt is made to determine dissolved metals in addition to total metals consult the guidance in Appendix I. The standard filtration does not yield acceptable results.

III. CYANIDE, TOTAL AND AMENABLE

Method 9010 (Manual SW 846, III)

a) The colorimetric or semi-automated spectrophotometric method should be used to achieve a lower detection limit in the range of 0.02mg/l.

b) Determine sulfide presence before running this test. If sulfide is present distill all standards per section 7.5 of the method.

If sulfide is not present distill 2 standards per section 7.4.2. If the readings do not agree with the curve by more than 10%, an error is present. It must be found and corrected before proceeding.

c) Run one blank per sample batch. Do not subtract the blank.

d) One of the downgradient samples must be spiked with a known quantity. Report percent recovery.

e) When no cyanide is detected report the lower detection limit for the test.

f) Holding time for a preserved sample is 14 days maximum. If sulfide is present the analysis must be performed within 24 hours. Preservative is sodium hydroxide to pH 12 and cooling to 4°C.

IV. FORMALDEHYDE

An acceptable procedure is available from the Divison. It is a DNPH derivative formation at mild pH which has been researched and tentatively verified by USEPA. (See Appendix III)

LIST OF REQUIRED COMPOUNDS

All chemicals listed in Part 264, Appendix IX are required to be tested.

Procedure 1

GC-MS, Purge & Trap
Volatile Compounds — Method 8260

The Division advises that the use of a wide-bore capillary column with this method overcomes many previous problems and provides better resolution.

Acetonitrile (or 8015)
Acrolein
Acrylonitrile
Acetone
Benzene
Bromodichloromethane
Bromoform (tribromomethane)
Methyl Bromide (Bromomethane)
Carbon disulfide
Chlorobenzene
Chlorodibromomethane
Chloroethane
Chloromethane
2-Chloroethyl vinyl ether
Chloroform
3-Chloropropene (Allyl Chloride)
2-Chloro 1,3-butadiene (Chloroprene)
1,2-dibromo-3-chloropropane (DBCP)
1,2-Dibromoethane (ethylene dibromide)
Dibromomethane
1,4-Dichloro-2-butene
Dichlorodifluoromethane
1,1-Dichloroethane
1,2-Dichloroethane
Trans-1,2-dichloroethylene
1,1-Dichloroethylene (vinylidene Chloride)
Methylene Chloride (dichloromethane)
1,2-Dichloropropane
cis 1,3 Dichloropropene
trans 1,3 Dichloropropene
ethyl Benzene
Iodomethane
Isobutyl Alcohol
MEK (2 butanone)
MIBK (Methyl isobutyl ketone)
Methyl normal butyl ketone (2 Hexanone)
Methacrylonitrile
Methyl Methacrylate
Ethyl Methacrylate
Pentachloroethane
Propionitrile
Pyridine
2 Picoline (2 methyl pyridine)
Styrene
1,1,1,2-Tetrachloroethane
1,1,2,2-Tetrachloroethane
Tetrachloroethene
Carbon Tetrachloride
Toluene
1,1,2-Trichloroethane
1,1,1-Trichloroethane
Trichloroethylene (trichloroethene)
Trichloroflouromethane
1,2,3-Trichloropropane
Vinyl acetate
Vinyl chloride
Xylene (total)
Ethylene glycol monoethyl ether
2 Nitropropane

Procedure 2

An alternative method 8015 using GC is listed for 3 compounds as follows:

1,4 Dioxane	- lower limit 150 ug/l
Methyl Ethyl Ketone	- lower limit 10 ug/l
Isobutyl Alcohol	- lower limit 50 ug/l
Acetonitrile	

The Division will accept results for these compounds if this method is employed. However, all of the above have been tested using Method 8260 with wide-bore capillary column (Procedure 1) and may be included in that method thus saving additional expense.

NOTE: The analyst is advised that extreme care with the common laboratory solvents must be exercised to prevent lab contamination from the air while testing for all volatile compounds (procedure 1 and 2) at these very low levels.

Procedure 3

GC-MS acid/base neutral

Method 8270
Capillary Column

Acenaphthene
Acenaphthalene
Acetonphenone
2-Acetylaminofluorene
4-Aminobiphenyl
Anthracene
Aniline
Aramite
Benz(a)anthracene
1,4Benzenediamine (phenylenediamine)
Benzo(k)fluoranthene
Benzo(b)fluoranthene
Benzo(g,h,i)perylene
Benzo(a)pyrene
p-Benzoquinone
Benzylalcohol
bis(2-chloroethoxy)methane
bis(2-chloroethyl)ether
2,2'-Dichloro disopropyl ether
bis(2-ethylhexyl)phthalate
4-Bromophenyl phenyl ether
Butyl benzyl phthalate
p-Chloroaniline
Chlorobenzilate
dichlorobenzene o,m, & p
4-chlorophenyl phenyl ether
2-Chloronaphthalene
Chrysene
Diallate
Dibenz(a,h)anthracene
Dibenzofuran
Di-n-butyl phthalate
3,3'Dichlorobenzidine
3,3'Dimethylbenzidine
Diethyl phthalate
Dimethoate
p-Dimethylaminoazobenzene
7,12-Dimethylbenz(a)anthracene
alpha-alpha-Dimethylphenethylamine
Dimethyl phthalate
m-Dinitrobenzene
Phenanthrene
Pronamide
Pyrene
Safrole
1,2,4,5-Tetrachlorobenzene
O, Toluidine
1,2,4-Trichlorobenzene

2,4-Dinitrotoluene
2,6-Dinitrotoluene
Di-n-octyl phthalate
Diphenylamine
Ethyl Methane Sulfonate
Fluoranthene
Fluorene
Hexachlorobenzene
Hexachlorbutadiene
Hexachlorocyclopentadiene
Hexachloroethane
Hexachlorophene
Hexachloropropene
Indeno(1,2,3-cd)pyrene
Isophorone
Isosafrole
Methapyrilene
3-Methylcholanthrene
Methyl methanesulfonate
2-methylnaphthalene
Naphthalene
1,4-Naphthoquinone
1-Naphthylamine
2-Napthylamine
2-Nitroaniline
3-Nitroaniline
p-Nitroaniline
Nitrobenzene
4-Nitroquinoline-1-oxide
N-Nitrosodi-n-butylamine
N-Nitrosodiethylamine
N-Nitrosodimethylamine
N-Nitrosomethylethylamine
N-Nitrosodiphenylamine
N-Nitroso dipropylamine
N-Nitrosomorpholine
N-Nitrosopiperidine
Nitrosopyrrolidine
5-Nitro-o-toluidine
Pentachlorobenzene
Pentachloronitrobenzene
Phenacetin

Acid

2-Chlorophenol
o,m,p Cresol
4 Nitrophenol
p-Chloro-m-cresol
2,4 Dichlorophenol
2,6 Dichlorophenol
2,4 Dimethylphenol
4,6-Dinitro-o-cresol
2,4-Dinitrophenol
Pentachlorophenol
Phenol
2,4,5-Trichlorophenol
2,4,6-Trichlorophenol
2,3,4,6 tetrachlorophenol
2-nitrophenol

Procedure 4

GC Pesticides and Herbicides

Organochlorine, Method 8080 GC-EC (Confirm positives by GC-MS)

Aldrin
Isodrin (aldrin isomer)(also 8270)
Chlordane
DDD
DDE
DDT
Dieldrin
Endosulfan I
Endosulfan II
Endosulfan sulfate
Endrin
Endrin aldehyde and ketone
Heptachlor
Heptachlor epoxide
Alpha-BHC
Beta-BHC
Gamma-PHC (Lindane)
Delta-BHC
Kepone
Methoxychlor
Toxaphene

Aroclor 1016
Aroclor 1221
Aroclor 1232
Aroclor 1242
Aroclor 1248
Aroclor 1254
Aroclor 1260

Herbicides, Chlorinated Acid Derivatives Method 8150 GC-EC

2,4D
2,4,5-T
2,4,5-TP
Dinoseb, DNBP

Organophosphorus Method 8140 GC-FP

Disulfoton
Methyl Parathion
Parathion
Sulfotepp, (tetraethyl dithiopyrophosphate)
Famphur, (phosphorothioic acid ester)
Phorate, (phosphorodithioic acid ester)
Dimethoate

Procedure 5

Toxic Metals

AA Furnace Method (Refer to Method 7000)
ICP MEthod 6010
Cold Vapor Method 7470 for Mercury

- Antimony
- Arsenic
- Barium
- Beryllium
- Cadmium
- Chromium
- Cobalt
- Copper
- Lead
- Mercury
- Nickel
- Selenium
- Silver
- Thallium
- Tin
- Vanadium
- Zinc

Procedure 6

Cyanide, total and amenable

Method 9010

This test determines any bound cyanide and potentially dissociable (therefore toxic) cyanide.

Procedure 7

Sulfide

Method 9030

This test determines any toxic sulfide containing compound.

Procedure 8

Formaldehyde - DNPH derivitization with liquid chromatography.
GC-MS confirmation. See Appendix III.

Procedure 9

Chlorinated Dioxins and Furans - Method 8290, Latest Revision, SW 846, III

2378 TCDD (required if tetra CDD is positive)
tetra CDD
tetra CDF
Penta CDD
Penta CDF
Hexa CDD
Hexa CDF

Procedure 10

Fluoride Method 129-71W. (Clean Water Act)

This test determines any free fluoride.

APPENDIX IX
Holding Times and Preservation for Groundwater

Parameter	Recommended Container	Preservative	Maximum Holding Time	Minimum Volume Required For Analysis
pH	T, P, G	Field Determined	None	25 mL
Specific Conductance	T, P, G	Field Determined	None	100 mL
TOC	G, Teflon-lined Cap	Cool 4°C, HCl to pH<2	28 Days	4 x 15 mL
TOX	G, amber, Teflon-lined Cap	Cool 4°C, add 1 mL of 1.1M Sodium Sulfite	7 Days	4 x 15 mL
Endrin Lindane Methoxychlor Toxaphene 2,4 D 2,4,5 TP Silvex	T, G	Cool, 4°C	7 Days	2,000 mL
Cyanide	P, G	Cool, 4°C, NaOH to pH > 12	14 Days (24 hours if sulfide)	500 mL
Oil and Grease	G only	Cool, 4°C H_2SO_4 to pH: 2	28 Days	100 mL
Semivolatiles	T, G, teflon lined cap	Cool, 4°C	5 Days to Extract, - 30 days *	1,000 mL
Volatile Organics		Cool, 4° C	7 Days Complete	
Radium Gross Alpha Gross Beta	P, G	Field Acidified to pH < 2 with HNO_3	6 Months	1 gallon
Coliform Bacteria	PP, G (Sterilized)	Cool, 4°C	6 Hours	200 mL
Sulfide	P, G	Cool, 4°C, add Zinc Acetate Plus Sodium Hydroxide to pH 9	7 Days	

T= teflon G=Glass
P=polyethylene PP= polypropylene

*- 30 days for complete test (CLP limit).
40 days maximum if special conditions warrant.

Parameter	Container	Preservative	Maxim Holding
Phenols (Semivolatile)	G, Teflon-lined Cap	Cool, 4°C, 0.008% $Na_2S_2O_3$	5 Days Extract
Benzidines	G, Teflon-lined Cap	Cool, 4°C, 0.008% $Na_2S_2O_3$	5 Days Extract
Phthalate Esters	G, Teflon-lined Cap	Cool, 4°C	5 Days Extract
Nitrosamines	G, Teflon-lined Cap	Cool, 4°C, Store In Dark, 0.008% $Na_2S_2O_3$	5 Days t Extract
PCBs, acrylonitrile	G, Teflon-lined Cap	Cool, 4°C	5 Days t Extract
Nitroaromatics and isophorone	G, Teflon-lined Cap	Cool, 4°C, 0.008% $Na_2S_2O_3$ Store In Dark	5 Days t Extract
Polynuclear Aromatic Hydrocarbons	G, Teflon-lined Cap	Cool, 4°C, 0.008% $Na_2S_2O_3$ Store In Dark	5 Days t Extract
TCDD	G, Teflon-lined Cap	Cool, 4°C, 0.008% $Na_2S_2O_3$	5 Days t Extract
Pesticides	G, Teflon-lined Cap	Cool, 4°C, pH 5-9	5 Days t Extract (14 days
Chromium VI	P, G	Cool, 4°C	24 Hours
Mercury	P, G	HNO_3 to pH 2	28 Days
Metals, Except Chromium VI and Mercury	P, G	HNO_3 to pH 2	3 Months

40 CFR PART 264
APPENDIX IX

GROUNDWATER MONITORING LIST *

Common Name	GMSM Procedure
Acenaphthene	3
Acenaphthylene	3
Acetone	1
Acetophenane	3
Acetonitrile; Methyl cyanide	1 or 2
2-Acetylaminofluorene; 2-AAF	3
Acrolein	1
Acrylonitrile	1
Aldrin	4
Allyl chloride	1
4-Aminobiphenyl	3
Aniline	3
Anthracene	3
Antimony	5
Aramite	3
Arsenic	5
Barium	5
Benzene	1
Benzo(a)anthracene; Benzanthracene	3
Benzo(b)fluoranthene	3
Benzo(k)fluoranthene	3
Benzo(ghi)perylene	3
Benzo(a)pyrene	3
Benzyl alcohol	3
Berylium	5
alpha-BHC	4
beta-BHC	4
delta-BHC	4
gamma-BHC; Lindane	4
Bis(2-chloroethoxy)methane	3
Bis(2-chloroethyl)ether	3
2,2'Dichlorodiisopropyl ether	3
Bis(2-ethylhexyl phthalate	3
Bromodichloromethane	1
Bromoform; Tribromomethane	1
4-Bromophenyl phenyl ether	3
Butyl benzyl phthelate	3
Cadmium	5
Carbon disulfide	1
Carbon tetrachloride	1
Chlordane	4
p-Chloroaniline	3
Chlorobenzene	1
Chlorobenzilate	3
p-Chloro-m-cresol	3
Chloroethane; Ethyl chloride	1
Chloroform	1

Common Name	GMSM Procedure
2-Chloronaphthelene	3
2-Chlorophenol	3
4-Chlorophenyl phenyl ether	3
Chloroprene	1
Chromium	5
Chrysene	3
Cobalt	5
Copper	5
m-Cresol	3
o-Cresol	3
p-Cresol	3
Cyanide	
2,4-D;2,4-Dichlorophenoxyacetic acid	4
4,4'-DDD	4
4,4'-DDE	4
4,4'-DDT	4
Diallate	3
Dibenz(a,h)anthracene	3
Diberzofuran	3
Dibromochloromethane; Chlorodibromomethane	1
1,2-Dibromo-3-chloropropane; DBCP	1
1,2-Dibromoethane; Ethylene dibromide	1
Di-n-butyl phthalate	3
o-Dichlorobenzene	3
o-dichlor	
m-Dichlorobenzene	3
p-Dichlorobenzene	3
3,3'-Dichlorobenzidine	3
trans-1,4-Dichloro-2-butene	1
Dichlorodifluoromethane	1
1,1-Dichloroethane	1
1,2-Dichloroethene; Ethylene dichloride	1
1,1-Dichloroethylene; Vinylidene chloride	1
trans-1,2-Dichloroethylene	1
2,4-Dichlorophenol	3
2,6-Dichlorophenol	3
1,2-Dichloropropane	1
cis-1,3-Dichloropropene	1
trans-1,3-Dichloropropene	1
Dieldrin	4
Diethyl phthalate	3
O,O-Diethyl O-2-pyrazinyl phosphorothioate; Thionazin	
Dimethoate	3
p-(Dimethylamino)azobenzene	3
7,12-Dimethylbenz(a)anthracene	3
3,3'-Dimethylbenzidine	3
alpha, alpha-Dimethylphenethylamine	3
2,4-Dimethylphenol	3
Dimethyl phthalate	3
Dimethyl Sulfate	
Dimethyl hydrazine	
m-Dinitrobenzene	3

Common Name	GMSM Procedure
4,6-Dinitro-o-cresol	3
2,4-Dinitrophenol	3
2,4-Dinitrotoluene	3
2,6-Dinitrotoluene	3
Dinoseb; DNBP; 2-sec-Butyl-4,6-dinitrophenol	4
Di-n-octyl phthalate	3
1,4-Dioxane	2
Diphenylamine	3
Disulfoton	
Endosulfan I	4
Endosulfan II	4
Endosulfan sulfate	4
Endrin	4
Endrin aldehyde	4
Ethylbenzene	1
Ethyl methacrylate	1
Ethyl methanesulfonate	3
Famphur	
Fluoranthene	3
Fluorene	3
Heptachlor	4
Heptachlor epoxide	4
Hexachlorobenzene	3
Hexachlorobutadiene	3
Hexachlorocyclopentadiene	3
Hexachloroethane	3
Hexachlorophene	3
Hexachloropropene	3
2-Hexanone	1
Indeno (1,2,3-cd)pyrene	3
Isobutyl alchol	2
Isodrin	4
Isophorone	3
Isosafrole	3
Kepone	3
Lead	5
Mercury	5
Methacrylonitrile	1
Methapyrilene	3
Methoxychlor	4
Methyl bromide; Bromomethane	1
Methyl chloride; chloromethane	1
3-Methylcholarthrene	3
Methylene bromide; Dibromomethane	1
Methylene chloride; Dichloromethane	1
Methyl ethyl ketone; MEK	1 or 2
Methyl iodide; iodomethane	1
Methyl methacrylate	1
Methyl methanesulfonate	3
2-Methylnaphthalene	3
Methyl parathion; Parathion methyl	4
4-Methyl-2-pentanone; Methyl isobutyl ketone	1

Common Name	GMSM Procedure
Naphthalene	3
1,4-Naphthoquinone	3
1-Naphthylamine	3
2-Naphthylamine	3
Nickel	5
o-Nitroaniline	3
m-Nitroaniline	3
p-Nitroaniline	3
Nitrobenzene	3
o-Nitrophenol	3
p-Nitrophenol	3
4-Nitroquinoline 1-oxide	3
N-Nitrosodi-n-butylamine	3
N-Nitrosodlethylamine	3
N-Nitrosodimethylamine	3
N-Nitrosodiphenylamine	3
N-Nitrosodipropylamine; Di-n-propyintitrosamine	3
N-Nitrosomethylethylamine	3
N-Nitrosomorphaline	3
N-Nitrosopiperidine	3
N-Nitrosopyrrolidine	3
5-Nitro-o-toluidine	3
Parathion	4
Polychlorinated biphenyls; PCBs	4
Polychlorinated dibenzo-p-dioxins; PCDDs	9
Polychlorinated dibenzofurans; PCDFs	9
Pentachlorobenzene	3
Pentachloroethane	1
Pentachloronitrobenzene	3
Pentachlorophenol	3
Phenacetin	3
Phenenthrene	3
Phenol	3
p-Phenylenediamine	3
Phorate	4
2-Picoline	1
Pronamide	3
Propionitrile, Ethyl Cyanide	1
Pyrene	3
Pyridine	1
Safrole	3
Selenium	5
Silver	5
Silvex; 2,4,5-TP	4
Styrene	1
Sulfide	7
2,4,5-T; 2,4,5-Trichlorophenoxyacetic acid	4
2,3,7,8-TCDD; 2,3,7,8-Tetrachlorodibenxo-p-dioxin	9
1,2,4,5-Tetrachlorobenzene	3
1,1,1,2-Tetrachloroethane	1
1,1,2,2-Tetrachloroethane	1
Tetrachloroethylene; Perchloroethylene; Tetrachloroethene	1

Common Name	GMSM Procedure
2,3,4,6-Tetrachlorophenol	3
Tetraethyl dithiopyophosphate; Sulfotepp	4
Thallium	5
Tin	5
Toluene	1
o-Toluidine	3
Toxaphene	4
1,2,4-Trichlorobenzene	3
1,1,1-Trichloroethane; Methylchloroform	1
1,1,2-Trichloroethane	1
Trichloroethylene; Trichloroethene	1
Trichlorofluoromethane	1
2,4,5-Trichlorophenol	3
2,4,6-Trichlorophenol	3
1,2,3-Trichloropropane	1
O,O,O-Triethyl phosphorothioate (Famphur)	
sym-Trinitrobenzene	
Vanadium	5
Vinyl acetate	1
Vinyl Chloride	1
Xylene (total)	1
Zinc	5

* This list is updated periodically and adopted by the Georgia General Assembly. The most recent list will be required.

MONITORING WELL SAMPLING PROCEDURE

The following demonstrates what is needed for good sample extraction. It can be adapted to the particular situation.

The greatest source of inadvertent sample contamination is through incorrect handling by field personnel. The sampler should keep in mind that the levels of concern are minute, as compared to a waste sample, and extreme care is needed. This will usually slow down the speed of sample collection, but the reliability of test results is increased proportionately.

Water standing in a well may not be a true representation of water quality in the aquifer. Changes in temperature and pressure, contact with air, and prolonged contact with well casing materials can all affect the chemical quality of the water. Therefore, before sampling, the well must be evacuated (purged).

WELL EVACUATION

Remember that any item coming in contact with the inside of the well casing or the well water should be kept in a clean container and handled only with gloved hands. Always start with the least contaminated well.

For wells with rapid recovery, which cannot be evacuated, 3 well volumes will be removed. This reflects the present technology in which the goal is to clear standing water without diluting any potential plume by drawing in pure water.

A. Assemble Equipment

1. Place a clean plastic sheet, such as a painter's drop cloth, around the well as a work area. Unlock protective well casing.

2. Bring a precleaned steel measuring tape and electric sounder to the plastic sheet. The sounder probe and tape have been precleaned in the lab and wrapped in foil. Unwrap without touching them.

3. Put on new gloves. Unlock and remove well cap. Place it top-down on a corner of the plastic sheet.

B. Calculate the volume of water to be evacuated:

1. Use the electric sounder ("m-scope") to measure the distance from top of the casing to top of water.

2. Use the clean steel tape to measure the distance from top of casing to the bottom of the well or use total depth data provided by company.

3. Subtract #1 from #2 to obtain the height (h) of the column of water in the well.

4. Multiply h times the appropriate conversion factor to obtain the volume of water in the well in gallons.

   a. For a 2-inch inside diameter well,
      h x 0.1623 = Volume (gal)

   b. For a 4-inch inside diameter well,
      h x 0.6 = Volume (gal)

5. Evacuate 3 X Volume (gal) to obtain a representative sample.

6. Clean the steel measuring tape and electric sounder probe by rinsing with ispropanol followed by distilled water. Wrap in foil for use on the next well. Keep in mind that with undried instruments there is a slight chance isopropanol may interfere in the tests, necessitating a resampling. If acetone is used, be sure to allow all apparatus to dry thoroughly before proceeding to next well. (also see tape cleaning, p.39)

C. Evacuate the Well

1. Bring 2 dishpans and a measuring container to the plastic sheet and line one dishpan with aluminum foil.

2. Bring the bailer, which has been precleaned in the laboratory and wrapped in foil, to the plastic sheet. Unwrap it without touching the bailer.

3. Bring the spool of bailer cord to the sheet. This roll has also been covered with foil to keep it clean. Place it in the unlined dishpan and unwrap it without handling the rope.

4. At this point both bailer-handler and helper should put on a new pair of gloves.

5. The end of the bailer rope is tied to the top of the bailer. Use foil where needed to assure that the rope does not touch any item while in use.

6. The bailer is lifted and lowered carefully into the well until it is submerged.

7. The bailer is raised in a hand over hand manner and the rope is allowed to fall into the polyethylene dishpan lined with foil.

8. Pour groundwater from bailer into the measuring container. Repeat bailing procedure until a 3X volume (gal) (see B4 and 5) has been evacuated. If the bailer touches the container, line the lip with aluminum foil.

9. If the well goes dry before 3 volumes is obtained, then sample when the well has recovered sufficiently to provide a sample volume. Some wells require 24 hours for recovery and settling.

10. Save the evacuated water in the measuring container for proper disposal. Do not pour on the ground next to the well. Each sampling plan must include the method for disposal.

11. The rope is untied from the bailer and the portion used is cut off for discard.

12. The used gloves, the used rope, the bailer foil, dishpan foil and the plastic sheet are rolled up and discarded in the large trash bag provided.

D. Proceed with sampling procedure, or if well requires a recovery period before sampling, replace well cap and lock protective casing.

WAITING PERIOD

Volatile and semi-volatile samples must be collected as soon as the well has recovered. If there is a sediment problem a waiting period of 24 hours maximum is allowed before collecting the metals samples.

SAMPLE COLLECTION

All tests will be required on unfiltered representative water. For dissolved metals discussion see next section.

The team should arrive at the site with ice already in place in the ice chests.

BAILED SAMPLES

1. Place a plastic sheet such as a painter's drop cloth, around the well as a work area, to prevent sample bottle contact with the ground. Unlock the protective well casing.

2. Bring 2 dishpans to the sheet and line one with aluminum foil.

3. Arrange sample bottles on the sheet. Place waste water container in vicinity of well.

4. Bring the bailer, which has been precleaned in the laboratory and wrapped in foil, to the plastic sheet. Unwrap it without touching the bailer.

5. Bring the spool of bailer cord to the sheet. This spool has also been covered generously with foil to keep it clean. Place it in the unlined dishpan and unwrap it without handling the rope.

   Selection of inert rope is important. Never buy colored rope. New nylon rope is available from several manufacturers. Where organic contaminants are of interest it may be advisable to use teflon rope for the first 10 feet of cord and discard after each well. However, the value of this may be offset by the additional handling required.

6. Take a pair of gloves and unlock and remove the well-cap. Place it top-down on a corner of the plastic sheet.

7. At this point both bailer-handler and helper should put on a new pair of gloves.

8. The end of the bailer rope is tied to the top of the bailer. The rope must not touch anything but clean aluminum foil. Use foil where needed.

9. The bailer is lifted and lowered carefully into the well until it is submerged.

10. The helper will unscrew the appropriate sample bottle caps and place them top down on the plastic sheet without touching the interiors or dislodging any teflon discs inside the caps.

11. The bailer is raised in a hand over hand manner and the rope is allowed to fall into the polyethylene dishpan lined with foil. The first bailer-ful is discarded into a waste container.

12. The samples are poured into the bottles without bubbles, and are filled to the top without headspace. Do not allow any cord to touch the water. The helper can hold the bottle and be responsible for recapping without touching the interior of the cap, and screwing down tightly. It is not good practice to leave samples in the sun. They should be removed to the ice chest as soon as possible.

13. The organic samples are the most delicate and should be collected first. A sample for volatile analysis must be filled so that the vial has a meniscus. The cap is slid over it and closed so that no bubble can be seen when the sample vial is upended. The volatile samples are always collected in pairs.

The other organics usually require two or three 1-liter bottles without preservative and these should be collected next, also without headspace.

If a sample is to be collected for dissolved metals it will not have preservative and should be collected next. If there is a sediment problem this sample should be collected right after the volatile samples in order to minimize the sediment requiring removal. Alternatively, wait 24 hours before collecting metals samples.

Finally, preserved samples should be collected, taking great care that the acids and salts in the bottles do not contact the helper's gloves and thus pass to other caps and bottles.

Do not allow the bailer to touch any sample bottles, or allow any rope end or gloved fingers to contact the sample well water while pouring.

14. All remaining sample bottles should now be carried to the ice chest where they are labeled, placed in zip-loc bags, and iced down.

15. The labels can be pre-filled out leaving less work and time delay at the site.

    The label must have:

    Name of facility
    Date of sampling and time
    Sample description (monitoring well ID and "up" or "down"
    Sampler's name

    Additionally, mark each sample bottle with an identification number using red glass-marking crayon which is resistant to water. Bottle caps are good places to add an I.D. This is a precaution in case labels get wet or come off during transport.

16. The well cap is replaced and locked. Lock the protective well casing.

17. The rope is untied from the bailer and all used rope is discarded.

18. The used gloves, the used rope, the bailer foil, dishpan foil and the plastic sheet are rolled up and discarded in the large trash bag provided.

19. Proceed to the next well and repeat.

    NOTE: It is good practice to take an extra set of sample bottles to the field in case of breakage or accidental contamination.

BAILER CLEANING

The best procedure is one bailer for one well. However, when this is not possible a single bailer may be cleaned between wells as follows:

1. The sampler, without removing gloves, will untie the rope and will open the bailer to allow the helper to pour distilled water into and around the bailer. This will be shaken and poured out.

2. The helper will then pour spectrograde isopropanol into and around the bailer. It is again shaken and poured out.

3. A final rinse is now performed with distilled water in copious amounts into and around the bailer. This should be done more than once.

4. A fresh piece of aluminum foil is placed on the plastic sheet and the bailer is placed in it. The foil is folded around the bailer for carrying.

5. It is important to sample the upgradient wells first and then proceed to the more contaminated wells.

6. The bailer is then returned to the laboratory for a thorough cleaning with alkonox and distilled water rinse, and foil wrapping.

   NOTE 1: For wells that are contaminated with insoluble wastes field cleaning is not recommended.

   NOTE 2: If isopropanol appears in the test, a resampling will have to be done.

STEEL MEASURING TAPE CLEANING

NOTE:
For badly contaminated wells it is not advisable to attempt to field-clean a tape and use it on a second well. It should be thoroughly scrubbed and rinsed with distilled water in the laboratory.

1. Steel tapes that are coated with teflon or nylon are the easiest to clean.

2. Have on hand 2 hand-held sprayers connected to 3 gallon containers and a source of tap water.

3. Prepare a dilute liquinox and water solution for addition to one sprayer.

4. Fill the second sprayer with distilled water.

5. The tape can be sprayed as it comes out of the well: First with liquinox solution, then rinsed in tap water and finally a copious spraying with distilled water. This will require 2 people to handle equipment.

6. Alternatively the tape can be immersed in liquinox solution, then rinsed in clear water, and finally sprayed with distilled water. The soap is a good solvent for oils but must be thoroughly removed.

7. The tape may also be cleaned like the bailer using isopropanol.

8. The clean tape should be wrapped in aluminum foil for carrying.

SPLIT SAMPLES

For most accurate results the parallel splitting procedure should be used.

Parallel Split

1. The 2 sample bottles for a given Parameter are lined up and caps removed.

2. One bailer-ful is poured into one bottle, and the next bailer-ful is poured into the other bottle, alternating until the 2 sample bottles are full. They are then capped as usual. If the bailer water is homogeneous then 1/2 bailerful is poured into each bottle.

3. The 2 sample bottles for another test are then lined up, and filled as in 2).

4. This procedure is continued until all test bottles for a given well are filled for both parties.

The parallel split will provide the most accurate indication of what is in the groundwater because it avoids excessive handling. Occasionally it may be desired to verify the work of the laboratory, or the field technique. In this case, a common bottle may be used. It should be understood that the common bottle will serve to create two very similar samples at the expense of possible loss or gain of contaminants through the additional sample handling.

Common Bottle Split

1. A receiving bottle large enough (1 gallon) to hold two sets of samples for a given parameter is needed, (one or two bottles for each well).

2. Water should be poured without bubbles, and the receiving bottle should be rotated for homogeneity but in no case splashed or jostled in any way.

3. Samples should be poured from the bottle in pairs for each parameter (1 metals for you, 1 metals for me, etc.).

4. Use a glass receiving bottle for organics and a polyethylene bottle for metals. Pre-rinse the bottle with well water and discard the water.

SAMPLING FOR METALS

The facility will be required to test for "total metals," and the Division will regulate based on these results.

Every effort should be made to install the wells correctly so that the water samples will be clear. Sediment remaining after developing and purging, is undesirable since it is not possible to know whether dissolved metals have temporarily adsorbed to the particles. Present studies indicate that metals movement in the aquifer is a series of dissolving and adsorbing phenomena. Therefore, it is not advisable to perform a filtration. It is also believed that the filtration procedure itself will alter the integrity of the sample.

In order to prevent metal adsorption onto container walls acid preservative is added. This acid could cause some dissolving of metals in the soil sediment which are not a part of groundwater contamination, if these metals happen to be present. It is not possible to make a comparison of various upgradient and downgradient sediments since the quantities vary independently from sample to sample.

For the foregoing reasons, and until such time as USEPA provides further quidance, a total metals test will be required. However, the Division will allow the water to settle in the well for 24 hours, if needed, before collecting the metals sample. This sample must be preserved with acid.

A facility may elect to perform tests on filtered samples. The use of glass or cellulose in the filtration has been shown to both contribute and remove metals. The Division advises that teflon or teflon coated apparatus including the filter disk should be used on unpreserved water. No glass or polyethylene should contact the samples prior to filtration. They should be collected from a teflon bailer into a teflon bottle, and filled to the top without headspace. Filtration should be performed within 24 hours into a preservative-containing flask.

THE TOTAL METALS SAMPLE

1. The sample shall not be permitted to contact glass prior to acidification.

2. A 500 ml glass sample bottle containing sufficient nitric acid for a pH less than or equal to 2 shall be filled, labeled, and placed on ice.

3. If sufficient well water is available the bailer should be rinsed in well water before collecting the sample.

THE BLANK

A 500 ml blank should be run with distilled water collected in the same manner as the well water. Report the blank results.

THE SAMPLE CONTAINER

1, The use of glass for organic chemicals and polyethylene for metals is a general precautionary measure in use today for minimizing adsorption to container walls. This is especially important for unpreserved samples. Teflon bottles are most inert but are very expensive.

2. The gases dissolved in groundwater such as carbon dioxide and nitrogen produce a certain acidity. Additonally volatile chemicals tend to escape from the liquid. Therefore good practice dictates filling the containers to the top without headspace for all pH sensitive materials and volatiles.

LABORATORY REPORT FORM

FOR

RCRA APPENDIX IX TESTING

PLEASE CERTIFY:

I am familiar with the contents of the Georgia Modified Standard Method, and have performed the quality control procedures described in the GMSM and the EPA Manual SW846 Edition III for groundwater, on the samples in this report.

Signed: ______________________
Lab Manager

Date: ______________________

Laboratory:

Facility Name:

Analyst:

Sample Description:

Date Sample Collected:

Sample ID#:

This sample received a Matrix Spike. Yes___ No___.

Date Tested:

Test:	ug/l Conc.	Instru. L.D.L.	Method L.D.L.	Surrogat %	Blank Conc.	Spike Blank %	Matrix Spike	Matrix Spike%	Matrix% Spike Dup
Compounds:									

Comments:

Analysis of Formaldehyde

This method consists of forming the 2,4 Dinitrophenyl hydrazine derivative, and analysis by liquid chromatography with absorbance detection. The procedure has been found to measure free formaldehyde without triggering formation of formaldehyde from precursors which may be present. The concentration range is 0.015-1.4 ppm with a calculated method detection limit of 7 $ug/_{l}$.

Apparatus

Liquid chromatography system with absorbance detector.
Column: 4.6x250 mm Zorbax ODS
Mobile phase: Methanol/water, 75/25
Flow Rate: 1.0 ml/min.
Detector at 360 nm

Reagents

1 $mg/_{ml}$ 2,4 Dinitrophenylhydrazine in ethanol.

5M Acetate buffer
Saturated sodium chloride solution
Spectrograde Methylene Chloride
C18 sorbent (J.T. Baker Chemical Co. acceptable)
Formaldehyde Standard

Procedure

1. Liquid samples are filtered using a centrifuge and glass fiber filter. (Not groundwater)

2. 100 ml sample is buffered by adding 4 ml of 5M acetate buffer.

3. 6 ml of 1 $mg/_{l}$ Dinitrophenyl hydrazine solution (in ethanol) is added.

4. Place on a wrist action shaker for 30 minutes at room temperature.

5. After 30 minutes 10 ml of saturated NaCl solution is added.

6. The derivative is now extracted from the solution into Methylene Chloride.

   The Methylene Chloride solution is concentrated using a Kuderna-Danish concentrator and a solvent exchange into Methanol is performed.

   Alternatively, instead of Methylene Chloride, a reverse phase solid sorbent extraction can be used and the sorbent eluted with ethanol. This may avoid occasional emulsion formation in Methylene Chloride. Experimenters have found that equivalent recovery can be obtained using 1.5 grams of C18 sorbent from the J.T. Baker Chemical Co. Three sorbents were evaluated and this one yielded the most satisfactory results. There may be other manufacturers.

7. The final volume (Methanol or Ethanol) is 10 ml. This is injected directly into a liquid chromatography system using a 20 ul injection.

8. The sample concentration is determined by injection of 3 specially prepared formaldehyde-DNPH standards to cover the expected range. The standards are buffered and synthesized in the same manner as the samples.

Comments

1. A distilled water blank should be run through the procedure to determine possible laboratory contamination.

2. A sample should be spiked and percent recovery reported.

3. Solid samples should be subjected to the Toxic Constituent Leaching Procedure (TCLP) using a PH5 acetate buffer. Results should be related back to the original weight of material as $mg/_{kg}$.

4. When formaldehyde has been found in a groundwater sample under a general search for contaminants, the result should be confirmed by GC-MS.

5. This method raises the pH of derivative formation to 5, instead of the previous highly acid conditions, in order to avoid generation of formaldehyde during test preparation. The method was studied and verified by EPA research scientists working with Battelle Corp., Columbus, Ohio.[1]

[1]Paper presented, EPA Symposium on Solid Waste Testing, July 13, 1987

February 19, 2008

Georgia Department of Natural Resources
Environmental Protection Division
Hazardous Waste Management Branch
Attn: Mr. Tom Brodell
2 Martin Luther King, Jr. Drive SE
Suite 1154E
Atlanta, Georgia 30334-9000

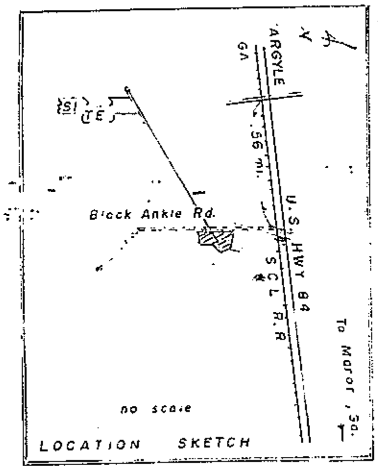
Re: Notice Filed as Required by 40 CFR 264.119
Manor Timber Company, Inc.
Argyle, Clinch County, Georgia

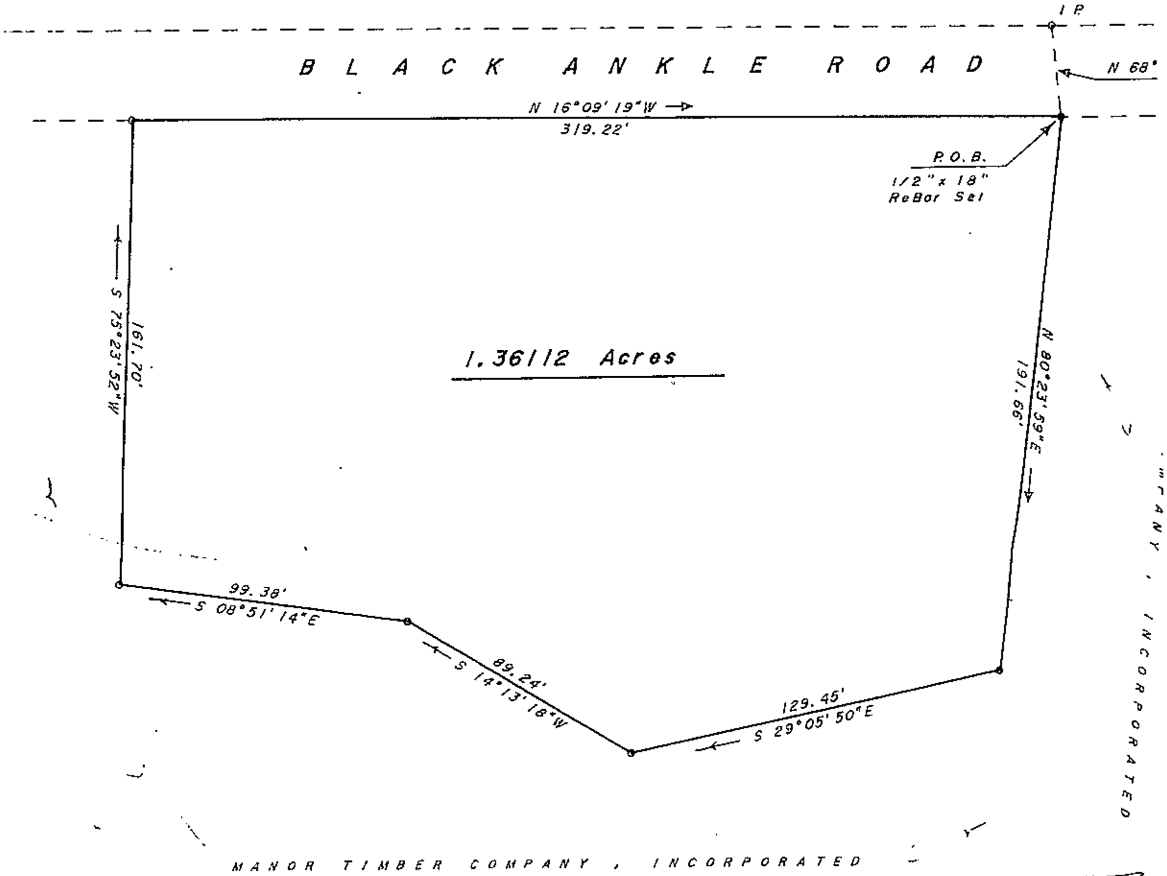
Dear Mr. Brodell:

In accordance with 40 CFR 264.119 we filed the attached notice on the Plat of the Closed Surface Impoundment with the Clerk of Superior Court of Clinch County, Georgia on December 29, 1988.

Sincerely,

William Peagler
Owner – Manor Timber Company





12" TOPSOIL

24" LOW PERM CLAY WELL CO in 6" LIFTS

THIS PLAT HAS BEEN RECORDED IN PLAT BOOK E
PAGE 39 IN THE OFFICE OF THE CLERK OF THE SUPERIOR COURT OF Clinch COUNTY, GEORGIA
THIS 29 DAY OF Dec., 1988 : TIME 11 A.M.
Sarah Belle C. Booth
CLERK OF THE SUPERIOR COURT

S U R V

MANOR TIMBER CO

L.L. 114 – 7th LAND DISTRICT – CLINCH

DATE : 12 DECEMBER 1988 – SCALE : 1

BRANCH SURVEY SYSTEMS TOTAL AUTOMATION

R/W

S 67°14'W - 2695.11'
To South Orig. L.L.L. of L.L. 413

To Argyle, Ga

R/W

NORTH

S 16°52'00" E
464.06'
I.P.

00"E 31.00'

Seaboard Coastline R.R.
(150' R/W)

To Manor, Ga.

R/W

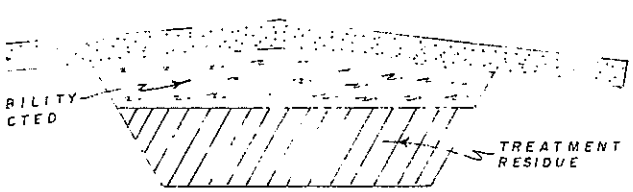
R/W

-N-O-T-E-

THE OWNER OF THE PARCEL OF LAND DEPICTED HEREON IS UNDER OBLIGATION TO RESTRICT DISTURBANCE OF SAID PROPERTY WHICH IS DESIGNATED AS A HAZARDOUS WASTE DISPOSAL UNIT ALL IN ACCORDANCE WITH THE APPLICABLE REGULATIONS IN SUBPART G OF PART 265, TITLE 40 OF THE CODE OF FEDERAL REGULATIONS

IN MY OPINION THIS PLAT IS A TRUE REPRESENTATION OF THE LAND PLATTED AND WAS PREPARED TO CONFORM WITH THE MINIMUM STANDARDS OF GEORGIA LAW.

CLOSURE: FIELD 8 PLAT 1' IN 10,000'
EQUIPMENT USED: TOPCON GS-10 Total Station



TYPICAL CROSS SECTION
NO SCALE

Y F O R

PANY, INCORPORATED

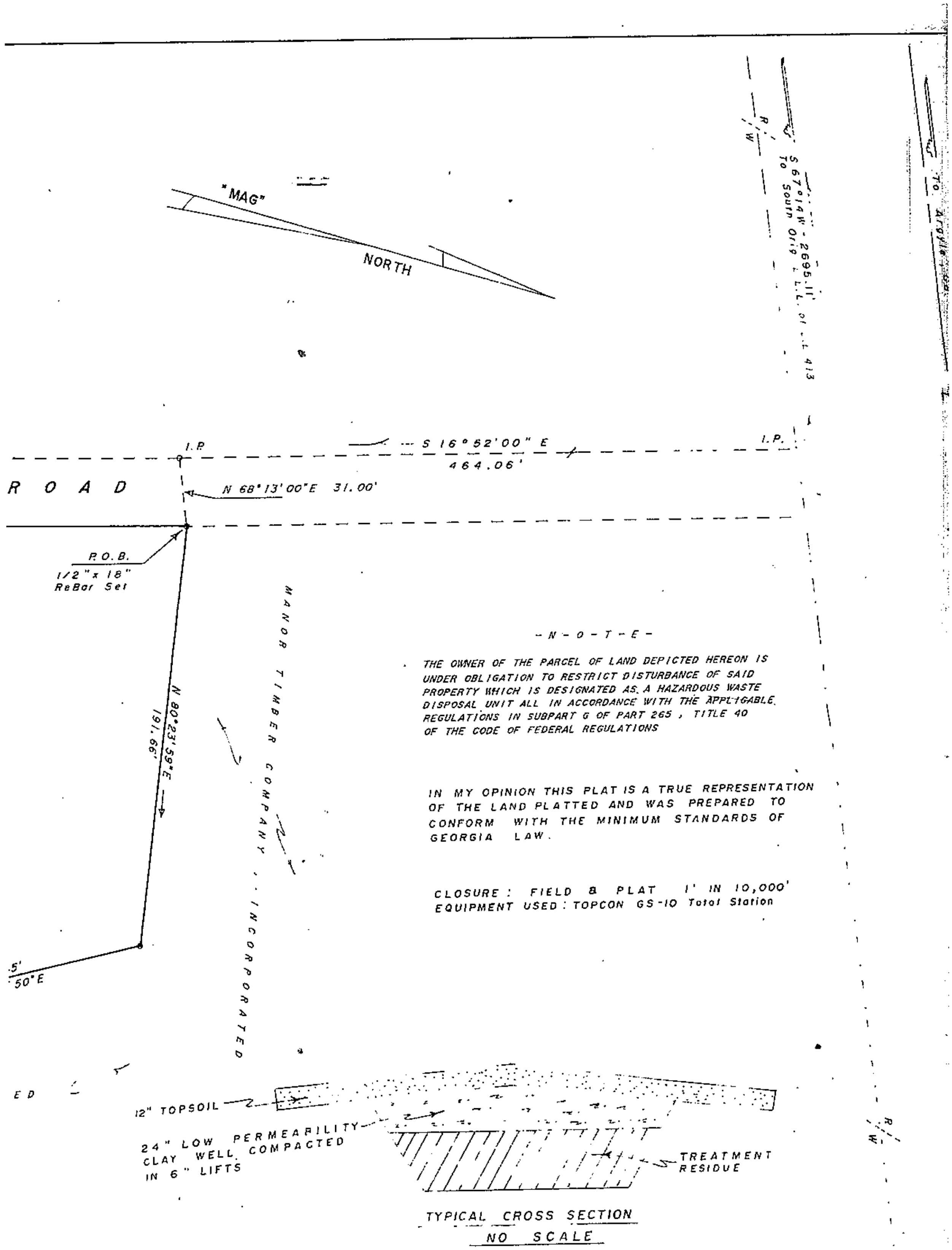
., GA.

=. 40'

0' 40' 80' 120'
1 Inch = 40 Feet
GRAPHIC SCALE

GEORGIA REGISTERED No. 1197 LAND SURVEYOR WILLIAM H. BRANCH JR.

WILLIAM H. BRANCH, JR.
GA. REG. LAND SURVEYOR NO. 1197
P.O. BOX 95 STOCKTON, GA. 31649
PHONE 1-912-242-0778



-N-O-T-E-

THE OWNER OF THE PARCEL OF LAND DEPICTED HEREON IS UNDER OBLIGATION TO RESTRICT DISTURBANCE OF SAID PROPERTY WHICH IS DESIGNATED AS A HAZARDOUS WASTE DISPOSAL UNIT ALL IN ACCORDANCE WITH THE APPLICABLE REGULATIONS IN SUBPART G OF PART 265, TITLE 40 OF THE CODE OF FEDERAL REGULATIONS

IN MY OPINION THIS PLAT IS A TRUE REPRESENTATION OF THE LAND PLATTED AND WAS PREPARED TO CONFORM WITH THE MINIMUM STANDARDS OF GEORGIA LAW.

CLOSURE: FIELD & PLAT 1' IN 10,000'
EQUIPMENT USED: TOPCON GS-10 Total Station

SURVEY FOR

TIMBER COMPANY, INCORPORATED

LAND DISTRICT - CLINCH CO., GA.

SCALE: 1" = 40'

0' 40' 80' 120'

APPENDIX B7. PUMP REPORTS (in gallons)

January 2019
RW1 1,499,090
Pump 2 9,060,620
Pump 3 10,096,430
Pump 4 11,819,195
Pump 5 7,362,690
M#1 17,566,410

February 2019
RW1 1,533,610
Pump 2 9,122,870
Pump 3 10,143,500
Pump 4 11,872,215
Pump 5 7,435,520
M#1 17,842,550

March 2019
RW1 1,558,100
Pump 2 9,138,380
Pump 3 10,151,320
Pump 4 11,885,435
Pump 5 7,456,190
M#1 17,931,800

April 2019
RW1 1,593,080
Pump 2 9,158,830
Pump 3 10,176,670
Pump 4 11,907,085
Pump 5 7,490,980
M#1 18,064,970

May 2019
RW1 1,636,800
Pump 2 9,197,510
Pump 3 10,198,020
Pump 4 11,944,055
Pump 5 7,551,520
M#1 18,270,410

June 2019
RW1 1,650,250
Pump 2 9,213,700
Pump 3 10,207,790
Pump 4 11,955,325
Pump 5 7,564,270
M#1 18,359,660

July 2019
RW1 1,663,050
Pump 2 9,218,760
Pump 3 10,216,950
Pump 4 11,955,325
Pump 5 7,564,270
M#1 18,393,580

August 2019
RW1 1,745,690
Pump 2 9,268,680
Pump 3 10,265,650
Pump 4 11,992,895
Pump 5 7,566,020
M#1 18,635,850

September 2019
RW1 1,787,750
Pump 2 9,299,760
Pump 3 10,267,810
Pump 4 12,011,005
Pump 5 7,590,640
M#1 18,768,510

October 2019
RW1 1,819,410
Pump 2 9,325,800
Pump 3 10,267,810
Pump 4 12,022,545
Pump 5 7,597,600
M#1 18,860,780

November 2019
RW1 1,850,350
Pump 2 9,338,950
Pump 3 10,268,520
Pump 4 12,043,885
Pump 5 7,598,360
M#1 18,956,023

December 2019
RW1 1,887,090
Pump 2 9,351,340
Pump 3 10,269,220
Pump 4 12,064,850
Pump 5 7,599,885
M#1 19,044,037

January 2020
RW1 1,955,180
Pump 2 9,456,880
Pump 3 10,316,980
Pump 4 12,118,311
Pump 5 7,610,240
M#1 15,570,950

February 2020
RW1 1,955,500
Pump 2 9,462,800
Pump 3 10,317,250
Pump 4 12,101,210
Pump 5 7,617,420
M#1 15,647,045

March 2020
RW1 1,962,000
Pump 2 9,499,830
Pump 3 10,318,980
Pump 4 12,104,320
Pump 5 7,646,860
M#1 15,723,140

April 2020
RW1 1,963,660
Pump 2 9,507,910
Pump 3 10,325,220
Pump 4 12,173,265
Pump 5 7,652,220
M#1 15,776,670

May 2020
RW1 1,966,100
Pump 2 9,517,450
Pump 3 10,338,130
Pump 4 12,179,910
Pump 5 7,657,210
M#1 15,833,580

June 2020
RW1 1,971,540
Pump 2 9,523,038
Pump 3 10,344,134
Pump 4 12,344,134
Pump 5 7,661,710
M#1 15,848,770

July 2020
RW1 1,976,340
Pump 2 9,528,015
Pump 3 10,350,004
Pump 4 12,186,170
Pump 5 7,664,190
M#1 15,863,270

August 2020
RW1 1,981,940
Pump 2 9,532,885
Pump 3 10,356,194
Pump 4 12,188,150
Pump 5 7,666,160
M#1 15,876,950

September 2020
RW1 1,987,100
Pump 2 9,539,045
Pump 3 10,361,864
Pump 4 12,188,150
Pump 5 7,668,250
M#1 15,892,210

October 2020
RW1 1,993,300
Pump 2 9,545,390
Pump 3 10,368,150
Pump 4 12,190,100
Pump 5 7,670,430
M#1 15,909,530

November 2020
RW1 1,998,650
Pump 2 9,549,380
Pump 3 10,389,110
Pump 4 12,192,254
Pump 5 7,672,730
M#1 16,044,050

December 2020
RW1 2,0004,010
Pump 2 9,552,480
Pump 3 10,392,710
Pump 4 12,197,290
Pump 5 7,678,360
M#1 16,059,050

January 2021
RW1 2,039,625
Pump 2 9,566,110
Pump 3 10,402,285
Pump 4 12,216,668
Pump 5 7,697,735
M#1 16,166,625

February 2021
RW1 2,075,240
Pump 2 9,579,740
Pump 3 10,411,860
Pump 4 12,235,423
Pump 5 7,717,735
M#1 16,274,200

March 2021
RW1 2,112,000
Pump 2 9,580,580
Pump 3 10,436,090
Pump 4 12,253,923
Pump 5 7,745,245
M#1 16,382,040

April 2021
RW1 2,121,973
Pump 2 9,585,803
Pump 3 10,445,650
Pump 4 12,256,045
Pump 5 7,747.367
M#1 16,409,040

May 2021
RW1 2,131,946
Pump 2 9,591,071
Pump 3 10,455,228
Pump 4 12,258,163
Pump 5 7,749,501
M#1 16,442,040

June 2021
RW1 2,141,920
Pump 2 9,596,250
Pump 3 10,464,770
Pump 4 12,260,289
Pump 5 7,751,611
M#1 16,469,040

July 2021
RW1 1,989,200
Pump 2 9,540,044
Pump 3 10,359,002
Pump 4 12,191,879
Pump 5 7,662,880
M#1 15,900,412

August 2021
RW1 1,997,456
Pump 2 9,539,206
Pump 3 10,360,179
Pump 4 12,189,963
Pump 5 7,671,893
M#1 16,001,254

September 2021
RW1 1,987,100
Pump 2 9,539,045
Pump 3 10,361,864
Pump 4 12,188,150
Pump 5 7,668,250
M#1 15,892,210

October 2021
RW1 1,993,300
Pump 2 9,545,390
Pump 3 10,368,150
Pump 4 12,190,100
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M#1 15,909,530

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Pump 3 10,389,110
Pump 4 12,192,254
Pump 5 7,672,730
M#1 16,044,050

December 2021
RW1 2,0004,010
Pump 2 9,552,480
Pump 3 10,392,710
Pump 4 12,197,290
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January 2022
RW1 2,039,625
Pump 2 9,566,110
Pump 3 10,402,285
Pump 4 12,216,668
Pump 5 7,697,735
M#1 16,166,625

February 2022
RW1 2,075,240
Pump 2 9,579,740
Pump 3 10,411,860
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RW1 2,141,920
Pump 2 9,596,250
Pump 3 10,464,770
Pump 4 12,260,289
Pump 5 7,751,611
M#1 16,469,040

SECTION C. WASTE CHARACTERISTICS

This section does not apply as this site is not a TSD facility.

40 CFR 264.1(g)(3) states the requirements of this part do not apply to a generator accumulating waste on site in compliance with Part 262.16 and Part 262.17 (a generator may accumulate waste on site for 90 days or less without a permit).

SECTION D. USE AND MANAGEMENT OF CONTAINERS

This section does not apply as this site is not a TSD facility.

40 CFR 264.1(g)(3) states the requirements of this part do not apply to a generator accumulating waste on site in compliance with Part 262.16 and Part 262.17 (a generator may accumulate waste on site for 90 days or less without a permit).

SECTION E. GROUNDWATER MONITORING

This section provides detailed information on background and site specific geologic and hydrogeologic data, contaminant plume characteristics, and groundwater corrective action. Figures, tables, and other supporting data are provided in appendices for added clarity.

E-1 Exemption from Groundwater Protection Requirements (40 CFR 270.14(c))

This section is not applicable to this site.

E-2 Interim Status Groundwater Monitoring Data (40 CFR 270.14(c)(1))

This facility is no longer conducting an interim monitoring program. A description of the current monitoring program is provided in Section E-6.

E-3 General Hydrogeologic Information (40 CFR 270.14(c)(2))

Facility Geology and Hydrogeology

Manor Timber is located in the southern portion of the Coastal Plain Physiographic Province of Georgia. The Coastal Plain borders the Piedmont Physiographic Province to the north at a boundary commonly referred to as "The Fall Line" stretching from Columbus in the west to Augusta in the east. The Coastal Plain extends south to the Atlantic coastline where processes of deposition and erosion are presently at work modifying the shoreline. The regional geology of the Coastal Plain consists of Cretaceous to Recent sedimentary rocks and unconsolidated sediments. The lower or southern portion of the Coastal Plain consists of a series of Quaternary beach complexes that parallel the modern coast and are younger in age nearer the coast.

A review of the Geologic Map of Georgia indicates that Manor and surrounding areas are underlain by Pleistocene and Pliocene age unconsolidated sand and gravel formations (*Geologic Map of Georgia, 1976*). Local geologic characteristics of the Waycross and surrounding Ware County area was reviewed from well logs compiled from the Georgia Geologic Survey (*GGS Bulletin 70, 1961*). These logs indicate that the subsurface stratigraphy consists of Pliocene to Recent age undifferentiated sand and clay deposits (ranging from 0-300 feet in depth); Miocene age undifferentiated sand, clay, and limestone deposits (ranging in depth from 300 to 500 feet); followed by Oligocene undifferentiated and the Upper Eocene age Ocala Limestone (ranging in depth from 500 to 775 feet or greater).

A review of site geologic conditions suggests that the geologic unit exposed on site is the Pleistocene to Recent unconsolidated sands and clay formation. A pale green sandy clay was identified starting at approximately 40 feet below ground surface (ft-bgs) that is assumed to be the confining layer of the surficial aquifer on site (refer to boring log for MW-3B, the deepest well on site).

Regional hydrogeological sources indicate that the principal drinking water sources in the Coastal Plain are provided from Cretaceous, Clayton, Clairborne, Principal Artesian or Floridan and Shallow (Miocene and Pliocene to-recent) aquifers. The primary source of groundwater in the Coastal Plain is the Floridan Aquifer system. The Floridan Aquifer can be divided into Upper and Lower units. The Upper Floridan consists of permeable limestone and dolomite of upper Eocene to Oligocene age ranging in thickness from 200 to 700 feet. The principal Eocene formation in the Upper Floridan is the Ocala Limestone. Low permeability Miocene clays and dolomites primarily of the Hawthorne Group act as an overlying confining bed for the Upper Floridan. The Lower Floridan is less permeable than the Upper unit and generally is not utilized when the Upper unit is available. It is separated from the Upper unit by a semi-confining formation of dense, dolomitic limestone (Arora, 1984).

A review of the GGS well logs for Clinch County indicates that potential water bearing aquifer zones were identified in the Pliocene or Miocene sand deposits at 250 feet or greater and in porous limestone units at greater depths. The water bearing zones appear to be confined by thick Miocene age clay units. Potable water in the Ware County area is derived from the Floridan Aquifer.

The site and surrounding properties are reportedly connected to the municipal water supply. One private water well, located near the maintenance shop, is used for potable water for plant operations. The water well is approximately 400 feet deep and withdraws water from the Floridan Aquifer, also known as the Principal Artesian Aquifer. Historically there were also two additional withdrawal wells located near the boiler and near the old house (north of the current mobile home). These two wells were constructed as shallow sand wells to approximately 20 ft-bgs and were used for boiler make-up water and for watering the lawn and garden. Both wells were constructed prior to 1983 and as of 1993 were reportedly abandoned and are no longer in use.

Shallow groundwater flow, as observed from monitoring well gauging, is predicted to migrate slowly to the north due to the minimal hydraulic gradient. Predicted groundwater flow sometimes shows a reversal due to localized precipitation resulting in shallow water table recharge. The mean sea level of the facility ranges from 163 feet above mean sea level near the center of the site to 155 feet above mean sea level near the southern boundary.

There are two principal drainage features in the vicinity of Manor Timber including Box Creek located approximately ½ mile west and Little Suwanee Creek located approximately ½ mile to the east. Both creeks generally flow from the northwest toward the southeast. Little Suwanee Creek emerges from a series of wetlands approximately one mile northwest of US Highway 84. Box Creek emerges from a series of wetlands more than three miles northwest of US Highway 84 and is considered the dominant drainage feature in the vicinity because it exhibits a larger drainage basin.

The general surface water drainage pattern in the vicinity of the site is to the south/southwest toward Box Creek. Due to shallow permeable soils, virtually all storm water percolates into the shallow groundwater and little, if any, runoff occurs. During heavy rainfall periods, however, it is possible for some limited, short term surface runoff to occur. Several shallow east/west drainage swales have been constructed on the site to control storm water during heavy rainfall. These swales carry surface water to the west where it is diverted into a collector channel running in a north/south direction. Surface runoff discharges either into the drainage canal paralleling the railroad or moves in a southerly direction and eventually discharges into Box Creek through a series of wetlands.

Groundwater Elevation Data and Flow Direction

The most recent groundwater elevation measurements were obtained on October 23, 2017, May 23, 2019, and June 28, 2022. Depth to water during the October 2017 event ranged from 3.36 feet in MW-16 to 7.25 feet in MW-3, excluding well MW-3B. Depth to water during the May 2019 event ranged from 4.00 feet in MW-16 to 7.38 feet in MW-6, excluding deep well MW-3B. Depth to water during the June 2022 event ranged from 3.06 feet in MW-16 to 6.54 feet in MW-4B, excluding deep well MW-3B.

The water table experiences increases/decreases in depth generally due to seasonal variations in rainfall (among other factors) which provides aquifer recharge.

Potentiometric surface maps for the shallow residuum groundwater flow zone were prepared using the October 2017, May 2019, and June 2022 groundwater elevations and are provided in Section B as **Figures B7, B8**, and **B17** respectively. A review of the maps indicates similar groundwater flow patterns with the predicted flow direction to the north. Groundwater flow may sometimes show a reversal or radial pattern because of rainfall since the water table is only a few feet from the land surface. Box Creek, located approximately 1,500 feet to the west, is the nearest surface water body.

Hydraulic Flow Calculations

Hydraulic flow properties including hydraulic conductivity and linear groundwater flow velocity were evaluated by the previous consultant. Envirorisk obtained these values from prior reports and utilized them to calculate the horizontal flow velocity. The hydraulic conductivity can be loosely defined as the velocity at which groundwater moves through the water-bearing soil medium.

The average horizontal groundwater flow was calculated using data collected during the June 2022 sampling event. Calculations were performed using the following formula taken from Darcy's equation for fluid flow through a porous medium:

Where:

$$Vh = \left[\frac{K \frac{dh}{dl}}{n} \right]$$

K = the average hydraulic conductivity of 3.25 feet per day (ft/day);

dh/dl = the hydraulic gradient measured as the hydraulic head distance between up-gradient well MW-5 and down-gradient well MW-9, divided by the measured distance between the wells, equaling 0.003 ft/ft; and

n = an estimated effective porosity of 25% or 0.25.

Using this formula, an average horizontal groundwater flow velocity of 0.039 ft/day or 14.2 feet per year (ft/year) was calculated. A previous horizontal flow velocity was calculated in 1995 at 14.2 ft/year using these assumed values. This calculated value assumes groundwater flow occurs through a homogeneous, isotropic, porous medium and should be considered as an estimate only. Since flow directions are sometimes reversed and/or radial, a constant gradient should not be assumed.

E-4 Topographic Map Requirements (40 CFR 270.14(c)(2),(3),(4)(i))

Topographic maps meeting the requirements of this section is provided in Section B as **Figures B-1** and **B-2**. **Figure B-1** is a topographic map of Manor Timber Company drawn to a scale of 1 inch = 100 feet with a one foot contour interval. The terrain is extremely flat with only about 8 feet of relief over the entire site. Mean sea level elevations on the site range from a high of about 163.0 near the center of the site to a low of about 155.0 near the southern boundary.

Figure B-2 is a topographic map prepared using a copy of the U.S.G.S 7.5 minute Homerville East 1988 quadrangle. The general topographic setting of the facility and surrounding area are shown on this map. The two principal drainage features with respect to the facility are shown and are identified as Box Creek to the west and Little Suwanee Creek to the east. Both generally flow from the northwest toward the southeast. Little Suwanee Creek emerges from a series of wetlands approximately one mile northwest of U.S. Highway 84. Box Creek emerges from a series of wetlands more than three miles northwest of U.S. Highway 84 and is also joined by a tributary known as Polly Branch just north of U.S. Highway 84. Box Creek is considered the dominant drainage feature in the vicinity of the facility because it exhibits a much larger drainage basin. The facility and closed surface impoundment are located slightly closer to Box Creek to the south/ southwest than Little Suwanee Creek to the east/southeast. The general drainage pattern in the vicinity of the site is to the south/southwest towards Box Creek.

E-5 Contaminant Plume Description (40 CFR 270.14(c)(2),(4),(7))

Groundwater impact at this site includes a mixture of dissolved volatile organic compounds (VOCs), semi-volatile organics (SVOCs), and dioxins. Appendix IX sampling is performed bi-annually to identify any new constituents that need to be added to the facility's permit.

Groundwater sampling is currently performed on a semi-annual basis as shown on the table below.

Well Descriptions and Sampling Requirements

<table>
<tr><th>Well ID</th><th>Well Purpose</th><th>Sampling Frequency</th><th colspan="2">Constituents</th></tr>
<tr><td>MW-4B</td><td>POC</td><td rowspan="9">Group 1-
Semi-annual</td><td rowspan="20">Phenol
2-Picoline
2-Chlorophenol
2,3,4-Methylphenol
2,4-Dimethylphenol
Naphthalene
p-Chloro-m-cresol
o,m,p-Cresol
2-Methylnaphthalene
2,4,6-Trichlorophenol
Acenaphthylene
2,3,4,6-Tetrachlorophenol
Acenaphthene
2,4-Dinitrophenol
Dibenzofuran
2,4-Dinitrotoluene
Fluorene
Pentachlorophenol
Phenanthrene</td><td rowspan="20">Anthracene
Carbazole
Fluoranthene
Benzo(a)anthracene
Chrysene
Benzo(b,k)fluoranthene
Benzo(a)pyrene
Dibenzo(a,h)anthracene
Indeno(1,2,3-cd)pyrene
Vinyl chloride
Acetone
2-Butanone
Benzene
4-Methyl-2-pentanone
Toluene
2-Hexanone
Ethylbenzene
o,m,p-Xylene</td></tr>
<tr><td>MW-9</td><td>Monitoring</td></tr>
<tr><td>MW-11</td><td>Monitoring</td></tr>
<tr><td>MW-15</td><td>POC</td></tr>
<tr><td>MW-16</td><td>POC</td></tr>
<tr><td>MW-17</td><td>POC</td></tr>
<tr><td>MW-18</td><td>Monitoring</td></tr>
<tr><td>MW-19</td><td>Monitoring</td></tr>
<tr><td>MW-20*</td><td>Monitoring</td></tr>
<tr><td>MW-4B</td><td>Monitoring</td><td rowspan="4">Group 2-
Biennial for
Appendix IX</td></tr>
<tr><td>MW-15</td><td>POC</td></tr>
<tr><td>MW-16</td><td>POC</td></tr>
<tr><td>MW-17</td><td>POC</td></tr>
<tr><td>MW-3</td><td>Monitoring</td><td rowspan="7">Group 3-
Biennial</td></tr>
<tr><td>MW-3B</td><td>Monitoring</td></tr>
<tr><td>MW-5</td><td>POC</td></tr>
<tr><td>MW-6</td><td>POC</td></tr>
<tr><td>MW-7</td><td>Background</td></tr>
<tr><td>MW-8</td><td>Monitoring</td></tr>
<tr><td>MW-10</td><td>Monitoring</td></tr>
<tr><td>MW-1</td><td>Monitoring</td><td rowspan="5">Group 4-
Not Sampled,
Water Level
only</td><td rowspan="11">None</td><td rowspan="11">None</td></tr>
<tr><td>MW-1A</td><td>Monitoring</td></tr>
<tr><td>MW-12</td><td>Monitoring</td></tr>
<tr><td>MW-13</td><td>Monitoring</td></tr>
<tr><td>MW-14</td><td>Monitoring</td></tr>
<tr><td>AB-5</td><td>Piezometer</td><td rowspan="6">Not sampled,
no water
levels</td></tr>
<tr><td>RW-1R</td><td>Recovery</td></tr>
<tr><td>RW-2</td><td>Recovery</td></tr>
<tr><td>MW-2</td><td>Recovery</td></tr>
<tr><td>MW-3A</td><td>Recovery</td></tr>
<tr><td>MW-4A*</td><td>Recovery</td></tr>
</table>

Notes: POC = Point of Compliance well

**MW-4A requires replacement and MW-20 is not installed*

Historical concentration data for VOCs and SVOCs are provided in Section B as **Tables B3, B4, and B5**. Dioxin sampling data is provided on **Table E1**. Appendix IX sampling data for the May 2019 and June 2022 events are provided in **Table E2**. Graphical concentration trend graphs prepared for selected wells for VOCs and SVOCs is provided in Section B as **Graphs 1-13**.

A description of detected constituents summarized in compound groups is provided in the section below followed by a discussion of the horizontal and vertical extent of regulated constituents and relevant concentration trends in subsequent sections.

Description of Detected Constituents

VOCs, SVOCs, dioxins, and Appendix IX parameters detected during the October 2017, May 2019, and June 2022 sampling events are discussed individually in the following sub-subsections followed by a discussion of individual compounds detected.

VOC Detections

In October 2017, a total of 6 VOCs were detected in the monitoring wells, in May 2019 a total of 8 VOCs were detected in the monitoring wells, and in June 2022 a total of seven VOCs were detected in the monitoring wells. VOC sampling results are reported in Section B as **Table B4**. The VOCs detected during the events are as follows:

- Acetone;
- Benzene;
- Ethylbenzene;
- 2-Hexanone;
- Methyl Ethyl Ketone;
- 4-Methyl 2-Pentanone;
- Toluene;
- Styrene; and
- Xylenes.

Concentration ranges for VOCs for the October 2017 sampling event are as follows:

- Acetone was detected at 29.0 micrograms per liter (µg/l) in MW-18 and at 140 µg/l in MW-17.

- Benzene was detected in 3 wells at concentrations ranging from 1.3 µg/l in MW-4B to 7.5 µg/l in MW-17.

- Ethylbenzene was detected in 4 wells at concentrations ranging from 1.1 µg/l in MW-4B to 20.0 µg/l in MW-18.

- Methyl Ethyl Ketone was detected in MW-18 only at 13.0 µg/l.

- Toluene was detected in 3 wells at concentrations ranging from 160 µg/l in MW-18 to 1,500 µg/l in MW-16.

- Xylenes were detected at 4.2 µg/l in MW-18 and at 15.0 µg/l in MW-17.

Concentration ranges for VOCs for the May 2019 sampling event are as follows:

- Acetone was detected in 3 wells at concentrations ranging from 33.1 µg/l in MW-18 to 124 µg/l in MW-16.

- Benzene was detected at 2.5 µg/l in MW-18 and at 4.8 µg/l in MW-17.

- Ethylbenzene was detected in 3 wells at concentrations ranging from 9.2 µg/l in MW-16 to 19.6 µg/l in MW-18.

- 2-Hexanone was detected in MW-17 only at 23.8 µg/l.

- Methyl Ethyl Ketone was detected in 3 wells at concentrations ranging from 14.0 µg/l in MW-18 to 62.6 µg/l in MW-16.

- 4-Methyl 2-Pentanone was detected at 5.5 µg/l in MW-3 and at 5.7 µg/l in MW-3B.

- Toluene was detected in 4 wells at concentrations ranging from 1.1 µg/l in MW-15 to 1,240 µg/l in MW-16.

- Xylenes were detected in 3 wells at concentrations ranging from 3.2 µg/l in MW-16 to 20.6 µg/l in MW-17.

Concentration ranges for VOCs for the June 2022 sampling event are as follows:

- Acetone was detected at 320 µg/l in MW-16 and at 140 µg/l in MW-17.

- Benzene was detected at 31.0 µg/l in MW-17 only.

- Ethylbenzene was detected in 3 wells at concentrations ranging from 9.9 µg/l in MW-16 to 30.0 µg/l in MW-17.

- 2-Hexanone was detected at 13.0 µg/l in MW-16 only.

- Methyl Ethyl Ketone was detected at 160 µg/l in MW-16 only.

- Toluene was detected in 3 wells at concentrations ranging from 79.0 µg/l in MW-18 to 2,200 µg/l in MW-16.

- Styrene was detected in MW-17 at μg/l during the Appendix IX analysis.

- Xylenes were detected at 70.0 μg/l in MW-17 only.

SVOC Detections

In October 2017, a total of 11 SVOCs were detected in the monitoring wells, in May 2019 a total of 12 SVOCs were detected in the monitoring wells, and in June 2022 a total of 15 SVOCs were detected in the monitoring wells. SVOC sampling results are reported in Section B as **Table B5**. The SVOCs detected during the events are as follows:

- Acenaphthene;
- Acenaphthylene;
- Carbazole;
- Dibenzofuran;
- 2,4-Dimethylphenol;
- Fluorene;
- 2-Methylnaphthalene;
- 2-Methylphenol (o-cresol);
- 3,4-Methylphenol (m+p-cresol);
- 4-Methylphenol
- Naphthalene;
- Pentachlorophenol;
- Phenanthrene;
- Phenol; and
- 2,3,4,6-Tetrachlorophenol.

Concentration ranges for SVOCs for the October 2017 sampling event are as follows:

- Acenaphthene was detected in 4 monitoring wells at concentrations ranging from 20.0 μg/l in MW-18 to 260 μg/l in MW-17.

- Carbazole was detected at 190 μg/l in MW-17 only.

- Dibenzofuran was detected at 43.0 μg/l in MW-4B only.

- 2,4-Dimethylphenol was detected in 3 monitoring wells at concentrations ranging from 56.0 μg/l in MW-18 to 240 μg/l in MW-17.

- Fluorene was detected in 4 monitoring wells at concentrations ranging from 29.0 μg/l in MW-18 to 190 μg/l in MW-17.

- 2-Methylnaphthalene was detected in 4 monitoring wells at concentrations ranging from 25.0 μg/l in MW-16/MW-18 to 320 μg/l in MW-17.

- 2-Methylphenol (o-cresol) was detected in 3 monitoring wells at concentrations ranging from 52.0 µg/l in MW-18 to 93.0 µg/l in MW-17.

- 3,4-Methylphenol (m+p-cresol) was detected in 3 monitoring wells at concentrations ranging from 52.0 µg/l in MW-18 to 350 µg/l in MW-16.

- Naphthalene was detected in 4 monitoring wells at concentrations ranging from 160 µg/l in MW-4B to 2,400 µg/l in MW-17.

- Phenanthrene was detected at 54.0 µg/l in MW-17 and at 57.0 µg/l in MW-4B.

- Phenol was detected at 34.0 µg/l in MW-16 and at 100 µg/l in MW-17.

Concentration ranges for SVOCs for the May 2019 sampling event are as follows:

- Acenaphthene was detected in 7 monitoring wells at concentrations ranging from 10.0 µg/l in MW-15 to 279 µg/l in MW-17.

- Carbazole was detected in 4 monitoring wells at concentrations ranging from 10.2 µg/l in MW-18 to 138 µg/l in MW-17.

- Dibenzofuran was detected at 20.0 µg/l in MW-4B and at 106 µg/l in MW-17.

- 2,4-Dimethylphenol was detected in 3 monitoring wells at concentrations ranging from 58.0 µg/l in MW-18 to 142 µg/l in MW-17.

- Fluorene was detected in 6 monitoring wells at concentrations ranging from 22.0 µg/l in MW-15 to 156 µg/l in MW-17.

- 2-Methylnaphthalene was detected in 5 monitoring wells at concentrations ranging from 11.4 µg/l in MW-11 to 255 µg/l in MW-17.

- 2-Methylphenol (o-cresol) was detected in 3 monitoring wells at concentrations ranging from 37.9 µg/l in MW-18 to 58.0 µg/l in MW-16.

- 3,4-Methylphenol (m+p-cresol) was detected in 3 monitoring wells at concentrations ranging from 61.1 µg/l in MW-18 to 278 µg/l in MW-16.

- Naphthalene was detected in 6 monitoring wells at concentrations ranging from 31.0 µg/l in MW-15 to 1,620 µg/l in MW-17.

- Pentachlorophenol was detected at 60.8 µg/l in MW-4B only.

- Phenanthrene was detected at 29.6 µg/l in MW-4B and at 82.3 µg/l in MW-17.

- Phenol was detected at 34.3 µg/l in MW-16 and at 54.9 µg/l in MW-17.

Concentration ranges for SVOCs for the June 2022 sampling event are as follows:

- Acenaphthene was detected in 6 monitoring wells at concentrations ranging from 18.0 µg/l in MW-15 to 400 µg/l in MW-17.
- Acenaphthylene was detected at 11.0 µg/l in MW-17 only.
- Carbazole was detected in 4 monitoring wells at concentrations ranging from 14.0 µg/l in MW-11 to 400 µg/l in MW-17.
- Dibenzofuran was detected in 4 monitoring wells at concentrations ranging from 10.0 µg/l in MW-11 to 240 µg/l in MW-17.
- 2,4-Dimethylphenol was detected at 22.0 µg/l in MW-18 and at 300 µg/l in MW-17.
- Fluorene was detected in 6 monitoring wells at concentrations ranging from 11.0 µg/l in MW-15 to 240 µg/l in MW-17.
- 2-Methylnaphthalene was detected in 5 monitoring wells at concentrations ranging from 14.0 µg/l in MW-11 to 530 µg/l in MW-17.
- 2-Methylphenol (o-cresol) was detected in 3 monitoring wells at concentrations ranging from 15.0 µg/l in MW-18 to 160 µg/l in MW-17.
- 3,4-Methylphenol (m+p-cresol) was detected at 450 µg/l in MW-17 and at 540 µg/l in MW-16.
- 4-Methylphenol was detected at 540 µg/l in MW-16 and at 450 µg/l in MW-17.
- Naphthalene was detected in 6 monitoring wells at concentrations ranging from 13.0 µg/l in MW-15 to 5,200 µg/l in MW-17.
- Pentachlorophenol was detected at 240 µg/l in MW-17 only.
- Phenanthrene was detected at 60.0 µg/l in MW-4B and at 140 µg/l in MW-17.
- Phenol was detected at 140 µg/l in MW-17 only.
- 2,3,4,6-Tetrachlorophenol was detected at 110 µg/l in MW-17 only.

In addition, 2,4,5-Trichlorophenol was detected at 52.0 μg/l and Acetophenone was detected at 73.0 μg/l in MW-17 during the Appendix IX analysis.

Dioxins

Dioxin analysis is required by the Permit bi-annually as part of the Appendix IX analysis. Monitoring wells MW-4B, MW-15, MW-16, and MW-17 are sampled on a rotating basis. During the May 2019 sampling event, MW-15 was analyzed for dioxins. During the June 2022 sampling event, MW-17 was analyzed for dioxins. Results are reported on **Table E1**.

Dioxin isomers detected in 2019 in MW-15 include Hexa CDF [(0.0097 nanograms per liter (ng/L)], Total HpCDD (0.06 ng/L), Total HpCDF (0.049 ng/L), OCDD (0.29 ng/L), and OCDF (0.38 ng/L). Envirorisk only had access to historical data for 2009, 2010, and 2014; however, all of these dioxins with the exception of Total HpCDF and OCDF were previously detected.

The only dioxin isomer detected in 2022 in MW-17 was TCDF at 4.9 ng/L.

Appendix IX Results

Appendix IX parameters were collected from MW-15 during the May 2019 sampling event and from MW-17 during the June 2022 sampling event. In accordance with permit requirements, Appendix IX sampling is performed bi-annually on a rotating basis from wells MW-4B, MW-15, MW-16, and MW-17. The purpose of the Appendix IX sampling is to identify any new constituents that need to be added to the facility's permit. Appendix IX sampling results are provided in **Table E2.**

Trend Analysis

Concentration versus time graphs were prepared for VOCs and SVOCs for select wells and are discussed in Section B.

Horizontal Extent of Contaminant Plumes

Isoconcentration maps were prepared depicting the horizontal extent of total VOCs (provided in Section B as **Figures B10, B12, B13, B15,** and **B18**) and SVOCs (provided in Section B as **Figures B9, B11, B14, B16,** and **B19**) for the 1998, 2006, October 2017, May 2019, and June 2022 sampling events. These maps provide an interpretation of plume migration and source area contaminant distribution.

A review of the horizontal extent of VOCs for the most recent three sampling events provided in Section B as **Figures B13, B15,** and **B18** indicates the presence of one dissolved plume with highest concentrations on the northern side of the impoundment. The highest total VOC concentrations for both events was detected in MW-16. The plume is approximately 400 feet in length primarily covering the closed surface impoundment.

The extent of VOCs is delineated to non-detect concentrations by MW-9/MW-19 to the north, MW-10/MW-11 to the east, MW-5/MW-8 to the south, and MW-7 further to the west.

A review of the horizontal extent of SVOCs for the most recent three sampling events provided in Section B as **Figures B14**, **B16**, and **B19** indicates the presence of one dissolved plume with highest concentrations also on the northern side of the impoundment, similar to the extent of VOCs. The highest total SVOC concentrations for all three events was detected in MW-17. The plume is slightly larger than the VOC plume and stretches approximately 450 feet in length, primarily covering the closed surface impoundment. The extent of SVOCs is delineated to non-detect concentrations by MW-9/MW-19 to the north, MW-10 to the east, MW-5/MW-8 to the south, and MW-7 further to the west. **Figures B16** and **B19** displays a slightly larger dissolved plume due to the detection of SVOCs in MW-11, located east of the impoundment. MW-11 was non-detect during the October 2017 event; however, this well has historically contained SVOCs.

E-6 General Monitoring Program Requirements (40 CFR 270.14(c)(5);264.90(b)(4); 264.97)

The general monitoring program requirements are described in the subsections below.

Description of Wells (40 CFR 270.14(c)(5); 264.97(a),(b),(c))

A total of 21 monitoring wells, 5 recovery wells, and 1 piezometer are currently located at the facility. The groundwater monitoring system includes MW-1, MW-1A, MW-3, MW-3B, MW-4B, MW-5, MW-6, MW-7, MW-8, MW-9, MW-10, MW-11, MW-12, MW-13, MW-14, MW-15, MW-16, MW-17, MW-18 and MW-19. Wells MW-4B, MW-5, MW-6, MW-15, MW-16 and MW-17 are the point of compliance (POC) wells installed along the boundary of the closed surface impoundment. MW-7 is the upgradient well. MW-3B is a deep monitoring well which monitors the underlying aquifer. MW-1, MW-1A, and AB-5 are not sampled and are used only for groundwater level data. Wells MW-8, 9, 10, and 11 are all sentinel wells which are located south and east of the closed surface impoundment to detect movement in these directions. Wells MW-12, MW-13 and MW-14 are "second line" sentinels. MW-19 was the last monitoring well installed (September 1998) to specifically monitor movement beyond MW-18. **Figures B-1** and **B-4** displays well locations. An additional well (MW-20) is proposed for installation northeast of MW-18 (**Figure B-4**). It is also proposed that the piezometer AB-5 be closed in accordance with the Water Well Standards Act.

The details of well installation methods and well logs for the groundwater monitoring system are provided in Section B as **Appendix B3**. One additional monitoring well (MW-20) is proposed approximately 150 feet northeast of MW18 and north of MW-9 (refer to Section B, **Figure B-4**). Well depths and screened intervals are provided in Section B as **Table B2**.

Description of Sampling and Analysis Procedures (270.14(c)(5); 264.97(d),(e),(f))

Post-closure monitoring is currently conducted on a semi-annual basis. Sampling procedures followed are described in the EPA, Region IV, Field Branches Quality System & Technical Procedures (FBQSTP), Science and Ecosystem Support Division, Operating Procedure (SESDPROC), dated April 26, 2017 or the latest version. Specifics of the sampling and analysis procedures are described below in the italicized sections.

Groundwater Depth Gauging

Before groundwater sampling, the total depth of each well and depth to groundwater is measured in all monitoring wells on site. Water level measurements are taken from the marked surveyed side of each well casing using an electronic water level indicator with 0.01 foot accuracy. To limit cross-contamination, measurements are taken starting with wells historically containing non-detect levels of contaminants and progressing to wells with higher contaminant levels. All measurements are recorded in a field notebook for use in calculating purge volumes, groundwater elevations, and flow direction. The water level indicator is decontaminated between each well by rinsing with a phosphate-free detergent, potable water, and de-ionized water in accordance with procedures described in the SESDPROC. Calculated groundwater elevations are added to the Groundwater Elevation Table along with historic data.

Groundwater Purging Procedure

After the collection of static water levels from the wells, the standing water column or well volume is calculated for each well to determine purge volumes. The calculation used for determining the volume of water in each well is as follows (based on a 2” diameter well):

$$\mathbf{V = 0.163 * h}$$

Where:
V = Volume of water in gallons
0.163 = gallons/foot conversion (2” well)
h = height of water column in feet

Prior to well purging, the ground surface around each well is prepared by placing disposable polyethylene sheeting around the well heads. Field purging is performed under “low flow” conditions using a peristaltic or submersible pump (RediFlo2-type) with dedicated disposable tubing. The quantity of water removed from each well is gauged using graduated buckets. During purging, the sampling technician measures and records pH, conductivity, temperature, dissolved oxygen (DO), and turbidity on a continuous basis using a multi-parameter meter equipped with a “Flow-Through” Cell. This meter is calibrated prior to use in the field to ensure accurate data collection. Parameter stabilization is evaluated in accordance with the SESDPROC. When stabilization of the parameters occurs, purging is halted. In the event that stabilization does not occur after three volumes are removed, purging is continued up to the removal of five well volumes or parameter stabilization, whichever occurs first.

The parameter measurements, purge volume data, and other general field sampling observations are recorded on well sampling logs and/or in a field book.

Sample Collection

Groundwater samples are collected in a specific order to reduce the potential for cross contamination between wells. In general, the sampling is conducted from least contaminated to most contaminated based upon a review of the prior sampling event results or historic trends.

Samples are collected after purging is complete using dedicated disposable tubing carefully lowered into the top of the well screen interval to minimize disturbance of the water column. Laboratory supplied containers are utilized for sample collection. Sampling parameters are collected in the order specified in the SESDPROC. Special care is taken when filling sample vials for VOC analyses to ensure minimal disturbance of the sample and zero head space conditions. Each vial is individually checked for the possible entrapment of air bubbles immediately after sample collection.

Upon collection, each sample container is assigned a unique sample identification number and is placed in an insulated cooler on ice. A laboratory Chain-of-Custody form is completed for each cooler. The Chain-of-Custody form is provided by the analytical laboratory and includes the sample date, sample time, sample identification, type of sample, and the requested analytical method. Sample coolers are hand delivered to a local EPD approved laboratory for analysis.

Sampling Plan and Analytical Methods

Currently there are a total of 21 monitoring wells, five extraction/recovery wells, and one piezometer installed on site. All wells were installed prior to Envirorisk's involvement. The permit issued on July 8, 2011 describes the sampling program, as detailed in Section E-5 above. The current sampling plan was altered from the original sampling plan due to a decrease in concentrations and plume size as a result of corrective action. Remediation goals are currently set to background for all wells and constituents. If additional constituents of concern (COCs) are detected during Appendix IX analyses, the detected COCs are added to the Groundwater Protection Standard in accordance with Part 264.99.

Initially in the 1993 permit modification application, MW-5, MW-8, and one POC well were sampled semi-annually and MW-12, MW-13, and MW-14 were sampled annually. Appendix IX samples were collected annually from one of the POC wells on a rotating basis. According to the 1996 permit modification application, MW-5 was changed to annual sampling (due to non-detect concentrations) and newly installed well MW-18 was added to the semi-annual list. In addition, MW-8, MW-12, MW-13, and MW-14 were moved to the bi-annual schedule due to historic non-detect concentrations.

The table in Section E-5 above details the sampling plan.

Quality Assurance and Quality Control

An internal Quality Assurance/Quality Control (QA/QC) Plan is followed by Envirorisk personnel to ensure the integrity of the data obtained during each sampling event. The QA/QC Plan includes requirements for experience of field personnel, record keeping, chain-of-custody documentation, sample equipment, sample preservation, and sample shipping and handling.

Quality control samples collected during each sampling event include trip blanks, equipment blanks, and field duplicates. Trip blanks are created and sealed by the laboratory using de-ionized water and accompany each cooler in the field. Equipment blanks are collected per sampling event to document the effectiveness of decontamination procedure when a submersible pump is utilized. The trip blanks and equipment blanks are analyzed for VOCs only. These samples were analyzed to assist in validating the laboratory's ability to reproduce data and to ensure that field conditions did not compromise sampling integrity. One field duplicate is collected from a well chosen during sampling.

Duplicate samples are collected and analyzed to assist in validating the laboratory's ability to reproduce data and to ensure that field conditions did not compromise sampling integrity. The duplicate will be assigned a unique sample identification number such that the receiving laboratory will not be able to recognize the sample as a duplicate. The duplicate samples will be analyzed for all of the constituents required for the well sample that is being duplicated.

Prior to reporting the data to the EPD, a review and evaluation of the quality control sample results will be performed. If significant concentration variances are noted between the duplicate sample and original well sample, the laboratory will be required to re-analyze both samples. If continued discrepancies are noted, additional samples will be collected from the wells and re-analyzed. In the event that detected constituents are observed in the field equipment blank or trip blanks, re-analysis of the blank samples may be required. If the presence of the detected constituents is confirmed, re-sampling of selected wells will be performed, as needed.

Disposal of Purge Water

All purge water generated during well sampling is temporarily stored in containers/drums prior to being transferred into the on-site wastewater treatment system for disposal/recycling.

Procedures for Establishing Background Quality (40 CFR 270.14(c)(5); 264.97(a)(1),(g)

Groundwater background quality will be determined from the up-gradient well MW-7. The statistical procedures for determining background concentrations are discussed in Section E-9.

Statistical Procedures (40 CFR 270.14(c)(5); 264.97(h)(i)(1),(5),(6)

Statistical analysis will be deferred until concentrations of regulated constituents have declined sufficiently such that the facility desires to terminate corrective action. A permit modification will be requested at that time. Concentration versus time graphs have been prepared for wells exceeding GPS concentrations in order to establish reduction trends over time.

E-7 Detection Monitoring Program (40 CFR 270.14(c)(6); 264.91(a)(4);264.98)

This section is not applicable due to prior knowledge of hazardous constituents detected in the groundwater at this facility. In lieu of a Detection Monitoring Program, a Correction Action Program is in place as described in Section E-9.

E-8 Compliance Monitoring Program (40 CFR 270.14(c)(7); 264.99)

This section is not applicable since a Correction Action Program is in place as described in Section E-9.

E-9 Corrective Action Program (40 CFR 270.14(c)(8); 264.99(j);264.100)

From 1972 to 1983, wastewater was generated from the steam drying process as condensed steam and water were drawn from the raw wood. The wastewater was contaminated with residual chemical preservatives (creosote and pentachlorophenol) from the previous treatment cycle that could not be removed from the cylinders and recycled to the make-up tanks. Wastewater was held in a 1.4-acre borrow area used as a surface impoundment. In 1983 a drying kiln was built, and the wood was no longer dried in the cylinders. The impoundment has not been utilized since 1983 and is currently fenced with a locking gate. It was originally designed as a 3,000,000-gallon storage unit.

Prior to 1983, waste generated from wood treating operations using creosote and pentachlorophenol was placed in a surface impoundment located across Black Ankle Road. Biological treatment was used to break down the waste in the surface impoundment from 1983 to 1988 when the surface impoundment was closed as a hazardous waste landfill. Historically CCA was not utilized at the facility, and therefore there are no known discharges of CCA into the surface impoundment.

Manor Timber generates approximately 7,500 pounds of hazardous waste annually during wood treatment processes including creosote waste, CCA waste, and spent carbon. The creosote derived waste (approximately 1,000 pounds annually) is identified as F034 and is comprised of soil, wood debris, and the creosote treatment solution. The CCA derived waste (approximately 3,000 pounds annually) is identified as F035 and is comprised of wood debris and soil mixed with the CCA solution. Spent activated carbon (approximately 3,500 pounds annually) is used to treat contaminated groundwater and is classified as F035 waste.

Corrective action has included closure of the surface impoundment and groundwater monitoring. Characterization of regulated constituents in groundwater followed by a description of the corrective action plan and on-going monitoring and reporting requirements is provided in this section.

Characterization of Contaminated Groundwater (40 CFR 270.14(c)(8)(i))

Characteristics of regulated constituents in groundwater are described in detail in Section E-5. The hazardous constituents detected in the groundwater includes a mixture of dissolved VOCs, SVOCs, and dioxins. The analytical results from the October 2017 event detected VOCs in wells MW-4B, MW-16, MW-17, and MW-18. SVOCs were detected in MW-4B, MW-15, MW-16, MW-17, and MW-18. The analytical results from the May 2019 event detected VOCs in wells MW-3, MW-3B, MW-15, MW-16, MW-17, and MW-18. SVOCs were detected in MW-4B, MW-15, MW-16, MW-17, and MW-18. The analytical results from the June 2022 event detected VOCs in wells MW-16, MW-17, and MW-18. SVOCs were detected in MW-4B, MW-11, MW-15, MW-16, MW-17, and MW-18.

Current and historic compounds detected are provided in Section B on **Tables B3 through B5**. Dioxins have historically been reported in select monitoring wells, and data is provided on **Table E1**.

Concentration Limits (40 CFR 270.14(c)(8)(ii); 264.94;264.100(a)(2))

The maximum concentration limits for constituents in the dissolved plume are set to background concentrations.

Alternative Concentration Limits (40 CFR 270.14(c)(8)(ii); 64.94(b); 264.100(a)(2))

This section is not applicable at this time.

Corrective Action Plan (40 CFR 270.14(c)(8)(iii);264.100(b))

On September 30, 1987, the Georgia EPD issued Hazardous Waste Permit No. HW-047(D). Groundwater samples collected at the facility indicated the presence of detectable concentrations of K001 constituents, and in January 1993 Manor Timber submitted a permit modification request that included preparation of a Corrective Action Plan (CAP). The modified permit was issued in June 1993, and in 1994 Manor Timber groundwater extraction activities commenced in the vicinity of the former surface impoundment from three recovery wells (MW-2, MW-3A, and MW-4A). The recovered water was treated with a two-line granular activated carbon system which was upgraded to a four-line system on May 31, 1999. Each line had three carbon canisters. RW-1 (later replaced with RW-1R) was added in 1996 to the recovery well system and RW-2 was added in 2002. Currently a total of five wells are utilized in the extraction system. Typically, over 150,00 gallons of groundwater per month are recovered, treated, and discharged to an on-site pond which has no discharge to surface waters.

On September 30, 1996, the permit was amended to include post closure care of the surface impoundment, and a new permit was subsequently approved on September 30, 1997. On September 21, 2002, Manor Timber prepared a Work Plan that described modification to the groundwater recovery system, including the addition of an additional recovery well on the northeast corner of the impoundment (RW-2). The most recent permit renewal was completed on July 8, 2011 followed by a Permit Modification on January 12, 2018. Currently there are a total of 21 monitoring wells, five extraction/recovery wells, and one piezometer installed on site.

The permit issued on July 8, 2011 described the sampling program, which was then amended in 2018. The 2018 amendment required semi-annual sampling of all POC wells. The current sampling plan was altered from the original 2011 sampling plan due to a decrease in concentrations and plume size as a result of corrective action (see Section E-5 above). Remediation goals are currently set to background for all wells and constituents. If additional constituents of concern (COCs) are detected during Appendix IX analyses, the detected COCs will be added to the Groundwater Protection Standard in accordance with Part 264.99.

Initially in the 1993 permit modification application, MW-5, MW-8, and one POC well were sampled semi-annually and MW-12, MW-13, and MW-14 were sampled annually. Appendix IX samples were collected annually from one of the POC wells on a rotating basis. According to the 1996 permit modification application, MW-5 was changed to annual sampling (due to non-detect concentrations) and newly installed well MW-18 was added to the semi-annual list. In addition, MW-8, MW-12, MW-13, and MW-14 were moved to the bi-annual schedule due to historic non-detect concentrations. The 2018 permit modification required semi-annual sampling of all POC wells (refer to the table in section E5 above).

Metals have historically been detected during Appendix IX sampling including maximum concentrations of arsenic [0.031 milligrams per liter (mg/L)], barium (0.46 mg/L), chromium (0.11 mg/L), lead (0.014 mg/L), vanadium (0.023 mg/L), and zinc (0.14 mg/L). From 1982 to 1985 iron was also present in all samples and low levels of mercury (0.0002-0.0004 mg/L) were detected. Metals have not been added to the facility's Groundwater Protection Standard list because they were not part of the former process of the closed surface impoundment, appear to be naturally occurring, and are attributed to suspended sediment in the groundwater.

Groundwater Monitoring Program (40 CFR 270.14(c)(8)(iv);264.100(d))

The Post-closure groundwater monitoring program consists of semi-annual sampling of selected monitoring wells to evaluate current conditions and the status of corrective action efforts. During each sampling event, all of the monitoring wells are gauged to determine groundwater depth for calculation of elevations. This data is added to a table with historic elevation measurements to observe trends over time. Section E-5, above, details the sampling plan.

Description of Groundwater Monitoring System (40 CFR 270.14(c) (7)(v),(8)

The monitoring well network utilized in evaluating the effectiveness of the corrective action system is described in Sections E-6 and Section E-9, above.

The locations of the monitoring wells are shown in Section B as **Figure B4**. Additional temporary and permanent monitoring wells may be proposed in the future to aid in plume delineation for corrective action development.

Description of Sampling & Analysis Procedures (40 CFR 270.14(c) (7)(v),(8)

The current sampling program consists of semi-annual sampling for analysis of VOCs and SVOCs for wells MW-4B, MW-9, MW-11, MW-15, MW-16, MW-17, MW-18, MW-19, and MW-20 (not yet installed). Monitoring wells MW-3, MW-3B, MW-5, MW-6, MW-7, MW-8 and MW-10 are sampled for VOCs and SVOCs biennially. Monitoring wells MW-4B, MW-15, MW-16, and MW-17 are sampled biennially for Appendix IX parameters. Groundwater monitoring procedures are provided in Section E-6.

Monitoring Data & Statistical Analysis Procedures (40 CFR 270.14(c) (7)(v),(8)

Monitoring data for all wells is reviewed in accordance with the Quality Assurance/Quality Control (QA/QC) procedures described in Section E-6. These procedures include the implementation of an internal QA/QC Plan followed by Envirorisk personnel to ensure the integrity of the data collected during each sampling event. The QA/QC Plan includes requirements for experience of field personnel, record keeping, chain-of-custody documentation, sample equipment, sample preservation, sample shipping and handling, and evaluation of quality control data. Quality control samples collected during each sampling event include trip blanks, equipment blanks, and field duplicates. A QA/QC review including an evaluation of the quality control samples is performed prior to reporting the sample data to the EPD. If necessary, re-sampling and analysis will be performed.

Until corrective action objectives are achieved, background concentrations of regulated constituents are assumed to be equivalent to practical quantitation levels (PQLs) reported by the laboratory.

Reporting Requirements (40 CFR 270.14(c)(7);264.100(g))

Semi-annual monitoring reports will be submitted to EPD during corrective action within 60 days of the receipt of laboratory analytical results. These reports will describe the field and analytical results of the sampling events and the effectiveness of the corrective action program. The following information will be provided as shown in the italicized sections:

- *Introduction*: provides a description of the facility and relevant background information along with a summary of activities performed for the reporting period.

- *Sampling Methods*: provides a description of groundwater depth measurements and field sampling and analysis procedures along with QA/QC sampling performed.

- *Site Hydrogeological Conditions*: includes a description of recent groundwater depths and calculated elevations shown in updated tables. Potentiometric surface maps will be prepared using the new data and used to determine flow direction, hydraulic gradients, and flow velocities.

- *Analytical Results*: includes a tabulated summary of VOCs and SVOCs detected along with supporting iso-concentration maps and concentration versus time graphs. Dioxins and Appendix IX sampling results are also provided, as dictated by the sampling schedule. Laboratory reports and field sampling sheets are provided as appendices.

- *Conclusions*: includes a summary of hydrogeological findings, groundwater sampling data and trends, corrective action effectiveness, and recommendations for any improvements needed.

E-10 References

The following references from published sources were utilized during preparation of Section E:

Arora, R., ed., 1984, *Hydrogeologic Evaluation for Underground Injection Control in the Coastal Plain of Georgia*: Georgia Geologic Survey Hydrologic Atlas 10,41 plates.

Barker, J.F. and Patrick, G.C., 1985, Natural Attenuation of Aromatic Hydrocarbons in a Shallow Sand Aquifer, Proceedings of the Petroleum Hydrocarbons and Organic Chemicals in Groundwater: Prevention, Detection, and Restoration Conference, Houston, Tx, pp. 160-177.

Batu, Vedat, 1998, Aquifer Hydraulics, John Wiley & Sons, Inc., New York, 727p.

Bouwer, H. and Rice, R.C., 1976, A Slug Test Method for Determining Hydraulic Conductivity of Unconfined Aquifers with Completely or Partially Penetrating Wells, Water Resources Research, 12-3, pp. 423-428.

Bouwer, H.,1989, The Bouwer and Rice Slug Test - An Update, Groundwater, vol. 24, no. 3, pp. 304-309.

Clark, W. Z., Jr. and Arnold, C. Z., Physiographic Map of Georgia, Department of Natural Resources, Geologic and Water Resources Division, Georgia Geologic Survey, 1976.

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Fetter, C. W., 1988, Applied Hydrogeology, 2nd Edition, Macmillan Publishing Company, New York, 592 p.

Freeze, R.A., and Cherry, J.A., 1979, Groundwater: New Jersey, Prentice Hall, Inc., 604 p.

Georgia Environmental Protection Division, Hazardous Waste Management Branch, Atlanta, GA, open file review.

Herrick, S. M., 1961, *Well Logs of Coastal Plain of Georgia*: Georgia Geologic Survey Bulletin 70, 462 p.

Kruseman, G. P. and DeRidder, N. A., 1990, Analysis and Evaluation of Pumping Test Data, International Institute for Land Reclamation and Improvement, Publication 47, Wageningen, The Netherlands, 377 p.

LeGrand, Harry E. (1989), A Conceptual Model of Ground Water Settings in the Piedmont Region, in Ground Water in the Piedmont, Charles c. Daniel III et. al. eds., Clemson University, Clemson, SC, 317-327.

Lohman, S. W., 1972, Ground-Water Hydraulics, Professional Paper 708, U.S. Department of the Interior, Geological Survey, 67 p.

Tanner, J.D., et al, Geologic Map of Georgia, Department of Natural Resources, Geologic and Water Resources Division, Georgia Geologic Survey, 1976.

Wiedemeier, T. H., 1999, Natural Attenuation of Fuels and Chlorinated Solvents in the Subsurface, John Wiley & Sons, Inc., New York, NY, p. 617

Historical Reports and Files provided by Manor Timber Company.

Table E1. Dioxin Results
Manor Timber Company
Manor, Clinch County, GA
Permit Number: HW-047(D)

SAMPLE ID	DATE	PENTA CDD	HEXA CDD	HEXA CDF	PENTA CDF	TCDD	TCDF	Total HpCDD	Total HpCDF	OCDD	OCDF
MW-17	**7/23/2009**	<0.0062	<0.0075	<0.0059	<0.0043	<0.0036	<0.0024	**0.069**	<0.0061	**0.35**	<0.011
MW-16	**7/15/2010**	<0.00377	**0.439 Q**	**0.945 Q**	**82.9 Q**	<0.00863	**75.7 Q E**	NA	NA	NA	NA
MW-17	**8/8/2014**	**0.154**	**0.161**	**0.28**	**3.52**	**0.0608**	**166.0**	NA	NA	NA	NA
MW-15	**5/25/2019**	<0.005	<0.0033	**0.0097**	<0.0029	<0.0012	<0.0015	**0.06**	**0.049**	**0.29**	**0.38**
MW-17	**6/29/2022**	<0.05	<0.05	<0.05	<0.05	<0.01	**4.9**	<0.05	<0.05	<0.01	<0.01

Notes:

ng/L= All data reported in nanograms per liter (1 part per trillion)
NA = not analyzed or reported by laboratory
Data prior to 2019 was collected by previous consultant(s)
Detections are shown in **bold**

BRL = Below reporting limits
E = Estimated result, concentration exceeds calibration range
Q = Estimated maximum possible concentration

Table E2. Appendix IX Sample Data (MW-15)
Manor Timber Company
Manor, Clinch County, GA
Permit Number: HW-047(D)

Volatile Organics (SW8260B)	Quantity (µg/L)	CAS #
Toluene	1.1	108-88-3

Semi-Volatile Organics (SW8270D)	Quantity (µg/L)	CAS #
Acenaphthene	39.0	83-32-9
Fluorene	22.0	86-73-7
Naphthalene	31.0	91-20-3

Metals (SW6020A)	Quantity (mg/L)	CAS #
Barium	0.093	7440393

IC Anions (SW9056)	Quantity (mg/L)	CAS #
Fluoride	0.13	16984-48-8

Notes:
MW-15 was sampled on May 25, 2019 per the Permit requirements.
CAS # = Chemical Abstract Number
Only compounds with detections are listed. Sample was analyzed for Appendix IX parameters.

Table E2. Appendix IX Sample Data (MW-17)
Manor Timber Company
Manor, Clinch County, GA
Permit Number: HW-047(D)

Volatile Organics (SW8260B)	Quantity (µg/L)	CAS #
Toluene	120	108-88-3
Acetone	140	67-64-1
Benzene	31.0	71-43-2
Ethylbenzene	30.0	100-41-4
Styrene	7.2	100-42-5
Xylenes	70.0	1330-20-7

Semi-Volatile Organics (SW8270D)	Quantity (µg/L)	CAS #
Acenaphthene	400	83-32-9
Fluorene	240	86-73-7
Naphthalene	5,200	91-20-3
2,3,4,6-Tetrachlorophenol	110	58-90-2
2,4,5-Trichlorophenol	52.0	95-95-4
2,4-Dimethylphenol	300	105-67-9
2-Methylnaphthalene	530	91-57-6
2-Methylphenol	160	95-48-7
3,4-Methylphenol	450	65794-96-9
Acenaphthylene	11.0	208-96-8
Acetophenone	73.0	98-86-2
Dibenzofuran	240	132-64-9
Pentachlorophenol	240	87-86-5
Phenanthrene	140	85-01-8
Phenol	140	108-95-2

Metals (SW6020A)	Quantity (mg/L)	CAS #
Barium	0.208	7440-39-3
Zinc	0.0312	7440-66-6

Sulfide (SW9030B)	Quantity (mg/L)	CAS #
Sulfide	5.40	18496-25-8

Notes:
MW-17 was sampled on June 29, 2022 per the Permit requirements.
CAS # = Chemical Abstract Number
Only compounds with detections are listed. Sample was analyzed for Appendix IX parameters.

SECTION F. PROCEDURES TO PREVENT HAZARDS

The information provided in this section is submitted in accordance with the requirements of 40 CFR 270.14 and 264.14. Other regulations addressed to complete this section include 264.15, 264.17, 264.174, 264.194, and 264.254.

This section generally addresses the following subject areas: general security, inspection schedule, request for a waiver of preparedness and prevention requirements, spill prevention, containment, and countermeasures plan; and prevention of accidental ignition or reaction of ignitable, reactive, or incompatible wastes. Inspection forms are included as an attachment as **Forms 1-8**. The findings of these inspections and observations will be recorded in the appropriate field forms and maintained in the facility operation record.

F1. Post-Closure Plan

The regulations governing closure of waste disposal sites, as contained with Federal Regulations in 40 CFR 264 and as adopted by the Georgia Hazardous Waste Management Rules, include requirements for post-closure care. These include inspection, maintenance, and groundwater monitoring. This Post Closure Care Plan for the closed Waste Management Area (WMA) includes inspection, monitoring, and maintenance activities that have already been performed since 1989. These activities will continue to be performed in accordance with the above cited regulations. The post-closure care period is expected to continue until the end of the compliance period as specified in 40CFR264.94.

F2. Inspection Plan

The following features are subject to inspection during the post-closure period:

- Security control devices;
- Erosion damage;
- Cover settlement, subsidence, and displacement;
- Vegetative cover conditions;
- Integrity of the WMA fence; and
- Well conditions.

The post-closure care of the closed WMA system will be conducted during the post-closure care period. Upon any permanent shut-down of the MTC facility, the post-closure care for the closed facility at the MTC site will be conducted primarily by the post-closure contact person. During continued plant operation, the Plant Manager will function as the contact person. The current Plant Manager is Mr. Samuel Henderson.

The on-site contact person will be provided with necessary inspection equipment by MTC. This equipment will be used by the on-site contact person to perform the inspection, monitoring, and maintenance tasks.

Although additional assistance is not expected, outside assistance may be required, if, for some reason, major maintenance activities become necessary. The post-closure cost estimates that are included are based on the assumption that some outside assistance may be necessary through the post-closure period.

F3. Cover Inspection

MTC will conduct monthly (and after major rainfall) inspections of site access and security systems (i.e., fences and gates), the cover integrity, including vegetative cover condition, potential erosion damage and cover subsidence. The WMA fence will be inspected to ensure that the integrity of the system has not been comprised. The results of the inspections and any corrective action taken will be placed on inspection log sheets provided as **Forms 1-8**. During plant shutdowns, the periodic inspections will be conducted by the plant watchman.

F4. Groundwater Monitoring System Inspections

The following features related to the groundwater monitoring system will be subject to the inspection and maintenance monthly and during semi-annual groundwater sampling events conducted during the post-closure care period:

- Groundwater monitoring wells;
- Monitoring well covers;
- Locks; and
- Integrity of surface seals.

Surface grout around the monitoring wells will be replaced or repaired if significant cracks or loose or missing grout are observed. Monitoring wells will be resurveyed if there is any noticeable change in the well, such as subsidence, moved protector pipe, etc. The monitoring wells will be kept locked when not in use. Missing or broken padlocks or caps will be replaced, as needed.

The results of the inspections will be placed in an inspection log which is included as **Form 2**. The inspection log will also provide for reporting any variances noted and remedial action taken.

F5. Monitoring Plan

The current post-closure groundwater monitoring program covered under the existing Hazardous Waste Management Permit for the closed WMA is discussed in Section B. Based on the historical data collected from this groundwater monitoring program, a revised groundwater monitoring program for the post-closure period may be proposed at a later date.

F6. Maintenance Plan

The contact person will be responsible for maintenance activities at the closed WMA. Additional labor and equipment operators may be needed occasionally, and their costs have been included in the post-closure cost estimate. Maintenance activities at the closed WMA will be triggered by problems/deficiencies which will be noted in the monthly inspections for the cover or during the groundwater monitoring inspections. Observations of the problem/deficiencies which could result in initiation of one or more of the following maintenance activities (as appropriate):

- Repair of security control devices;
- Erosion damage repair; and
- Correction of settlement, subsidence, and displacement;
- Mowing, fertilization, and other vegetative cover maintenance; or
- Well repair or replacement.

F7. Post-Closure Security

The WMA was closed in a manner that controls and minimizes or eliminates, to the extent necessary to prevent threats to human health and the environment, post-closure escape of hazardous waste of hazardous constituents to groundwater or surface water or to the atmosphere. In general, the performance standard was achieved by removing liquids and bottom sludges, and stabilizing remaining contaminated soil and residual sludges, and is being ensured by the construction of a low-permeability liner and cap.

During the post-closure period, it is important that means and methods be maintained to keep unauthorized persons out of the closed WMA area. When the facility is not open, the entrance road gates are closed and locked. All site personnel are instructed to report any unusual activities or security incidents to a supervisor, who may in tum contact the police. All visitors are instructed to report to the plant office.

In addition to the entrance gates, MTC access is physically controlled by a fence and a railroad/ditch to the north, wooded area to the east, a ditch to the south, and a swamp to the west. A separate fence encloses the WMA. Signs are posted and maintained on each side of the closed WMA. The warning signs read "DANGER- UNAUTHORIZED PERSONNEL KEEP OUT". The signs are legible from a distance of 25 feet and are posted at all directions of approach. The plant security devices and procedures control access to the closed WMA.

F8. Post-Closure Contact

The post-closure contact for the facility during the post-closure period is:

Mr. Samuel Adam Henderson, Plant Manager - Manor Timber Company, 102 Black Ankle Rd, Manor, GA 31550, (912) 487-2621.

INSPECTION REPORT DESCRIPTIONS (FORMS 1 THROUGH 8)

FORM 1- CLOSED SURFACE IMPOUNDMENT

This form is completed each monthly by the Plant Manager, Mr. Henderson, or his representative.

FORM 2- MONTHLY GROUNDWATER MONITORING WELL INSPECTION

This form is completed monthly by Mr. Henderson or an employee. Those items needing action are addressed by project personnel.

FORM 3- MONTHLY GROUNDWATER MONITORING WELLS

This inspection is normally performed by Mr. Henderson each month and displays depth to water differences compared to the prior month. Rainfall is also shown on this form as are the meter readings from each recovery well.

FORM 4- TESTS FILTRATION SYSTEMS

The effluent from the recovery wells is monitored monthly at the outfall to anticipate when new carbon is required. This form and the analysis are completed monthly by Mr. Henderson and are reported on this form.

FORM 5 – MONTHLY PUMPING REPORTS

This form is generated monthly and shows the summary of the months pumping per well and the total for the system. An explanation sheet ls attached identifying the various items. The monthly report summarizes the daily pumping reports. All are prepared by Mr. Henderson.

FORMS 6-8

These records are prepared either daily or on other schedules to assure compliance with hazardous waste clean-up and storage regulations. They are completed by the treatment area managers and are reviewed by Mr. Henderson to assure compliance.

TESTING AND INSPECTION ACTIVITIES - MANOR TIMBER COMPANY

PURPOSE	FREQUENCY	FORM	PERSONNEL
Site Control: gates, locks, access	Daily (1)	None	Watchman or Site Personnel
Closed Surface Impoundment	Monthly and after rainstorms	1	Site Personnel
Monthly Ground Water Monitoring Well Inspection	Monthly	2	Site Personnel; 3rd Party (semi-annual)
Monthly Ground Water Level Reading	Monthly	3	Site Personnel; 3rd Party (semi-annual)
Remediation Filtration System	Daily (2)	4	Site Personnel; 3rd Party (semi-annual)
Monthly Pumping Reports	Daily (2)	5	Site Personnel; 3rd Party (semi-annual)
Drum Storage/Accumulation (Hazardous Waste)	Weekly	6	Site Personnel; 3rd Party (semi-annual)
Door Sump Inspection	Daily (workdays)	7	Site Personnel; 3rd Party (semi-annual)
Drip Pad Inspection	Weekly (Thurs)/ Annually	8	Site Personnel; 3rd Party (semi-annual)

(1) Access to the site is controlled by gates which are locked except during plant operation (normal working hours).

(2) Meters are read at the beginning of each workday and results are summarized in the Monthly Report. The entire remediation system is inspected at this time and any deficiencies noted/repaired.

<u>FORM 1</u>

MANOR TIMBER COMPANY, INC.

CLOSED SURFACE IMPOUNDMENT

MONTHLY INSPECTION REPORT

FENCES: ____

VEGETATION: ____

VISIBLE SIGNS OF BORROWING ANIMALS ( ) YES ( ) NO

VISIBLE SIGNS OF SINK HOLES ( ) YES ( ) NO

VISIBLE SIGNS OF ANT MOUNDS ( ) YES ( ) NO

ANT MOUNDS TREATED ( ) YES ( ) NO

VISIBLE SIGNS OF EROSION ( ) YES ( ) NO

ARE WARNING SIGNS POSTED ( ) YES ( ) NO

IS THE SECURITY FENCE INTACT ( ) YES ( ) NO

IS FENCE GATE IN GOOD WORKING CONDITION ( ) YES ( ) NO

ARE LOCKS WORKING AND IN GOOD CONDITION ( ) YES ( ) NO

ARE GROUNDWTER MONITORING WELL PADS NOT BROKEN ( ) YES ( ) NO

ARE GROUNDWTER MONITORING WELL LOCKS WORKING ( ) YES ( ) NO

INSPECTION DATE: ____

INSPECTED BY: ____

FORM 2

SIGNATURE OF INSPECTOR ____________________

DATE ____________________

"original"

MANOR TIMBER COMPANY

MONTHLY GROUND WATER MONITORING WELL INSPECTIO

Date:________ Time:________ Inspector:________________ Temperature:_____ Weather:______________

WELL NUMBER	LOCKED (Y/N)	MARKED (Y/N)	VEGETATION PRESENT (Y/N)	VENTED (Y/N)	PAD CONDITION (DESCRIBE)	REMARKS
MW1						
MW1A						
MW3						
MW3B						
MW4B						
MW5						
MW6						
MW7						
MW8						
MW9						
MW10						
MW11						
MW12						
MW13						
MW14						
MW15						
MW16						
MW17						
MW 18						
Signature of Inspector MW 19						

FORM 3

MANOR TIMBER COMPANY, INC.
MONTHLY GROUND WATER MONITORING WELLS
DATE / / TIME TEMPERATURE F
WEATHER

	mw1	mw1A	mw3	mw3B	mw4B	mw5	mw6
DEPTH TO WATER							
difference prior month							
DEPTH TO WATER	mw7	mw8	mw9	mw10	mw11	mw12	mw13
difference prior month							
DEPTH TO WATER	mw14	mw15	mw16	mw17	mw18	mw19	mw
difference prior month							

YTD RAIN FALL TIME FROM__________TO____________

PUMPS DATE / / P-2___________P-2___________=____________
PUMPS DATE / / P-3___________P-3___________=____________
PUMPS DATE / / P-4___________P-4___________=____________
PUMPS DATE / / RW1__________RW1__________=____________
PUMPS DATE / / P-5___________P-5___________=____________
EXP LINE DATE / / EXP__________EXP__________=____________
METER M1 DATE / / M1___________M-1__________=____________
TOTALS=____________

SIGNATURE____________________________date / / 20_______

FORM 4

Manor Timber Company

Test

Filtration Systems

Date______________

Time_______________ ( ) am ( )pm

Incoming Line _______________ Filter Tank _______________ Test Results

Exit Line _______________Gallons Tested _______________ _______________

Comments: ____

Signed by____

Manor Timber Company Inc

Loc sft

FORM 5

MONTHLY PUMPING REPORTS
EXPLANATION OF COMMENTS

(1) End of period – meters read in the morning; actually indicates reading at end of the previous reading date (i.e., pumpage through 26th).

(2) Date of beginning – meters read about 0730 to 0900 hours on this date.

(3) Indicates individual pumps proportion of total pumpage for period.

(4) Individual pump gallons for the period.

(5) Pump 4 – Well MW4A
Pump 5 – shown P-5 is well RW2

(6) RW1R – Recovery Well 1 (Replacement)

(7) EXP/P – total pumped from filter system – meter of outflow from filter.

(8) M1 – total pumped from filter system, previously used to provide processing water quantities – also at outflow. This number should be the same as EXP/P since no recovered water is used for process.

(9) T-Pump – This number should reflect total of each individual meter reading.

(10) No water has been stored or used in production due to excess iron content.

FORM 5

				MANOR TIMBER COMPANY, INC.				
				FOR THE PERIOD				
		(1)	(2)	(3)				
DATE				PERCENT	DIFFERENCES			
P-2					0			
P-3					0			
P-4					0			
P-5					0			
RW1R					0			
EXP/P					0			
M-1					0			
T-PUMP		0	0	0	0			
TANKS		0	0					
MONTH	T PUMP	P-2	P-3	P-4	P-5	RW1R	M-1	EXP/POND
01 11								
02 11								
03 11								
04 11								
05 11								
06 11								
07 11								
08 11								
09 11								
10 10								
11 11								
12 10								
TOTALS	0	0	0	0	0	0	0	0
PERCENTS								

FORM 6

MANOR TIMBER COMPANY, INC.
WEEKLY RECORD OF DRUMS STORAGE ON SITE AT MANOR TIMBER COMPANY, INC.

DATE__________20______

DRUM STORAGE AREA

TIME______________( )AM ( )PM

NUMBER OF DRUMS____________________________

LEAK ( )YES ( )NO
IF YES ACTION TAKEN TO CORRECT THIS PROBLEM

____

____
TIME____________( )AM ( )PM
REPORTED TO_______________DATE_____________20___________
CORRECTION DATE_________DATE_________20______-TIME ( )AM ( )PM

****

ACCUMULATION STORAGE AREA

DATE___________________20___________
TIME____________________( )AM ( )PM
NUMBER DRUMS________________________
LEAK ( )YES ( )NO
IF YES ACTION TAKEN TO CORRECT THIS PROBLEM___________________

____

CORRECTION DATE ___________________20____________________
TIME________________( )AM ( )PM
TYPE OF CORRECTION______________________________________
____
____

TYPE OF REPAIRS____

PERSON MAKING THE REPAIR_________________________________
SIGNED BY __________________DATE______________20______________

FORM 7

MANOR TIMBER COMPANY INC.
102 BLACK ANKLE ROAD
MANOR, GEORGIA 31550

REF.**#40-264 SUBPART J DOOR SUMPS**

DATE________________20_____

SUMP PUMPS CRESOTE DOOR

PUMP WORKING ( )YES ( ) NO

IF NO REASON______________________________________

____

REPAIRED____

____

SUMP PUMPS CCA-C DOOR

PUMP WORKING ( )YES ( ) NO

IF NO REASON____

REPAIRS____

____

MANOR TIMBER COMPANY, INC.

INSPECTED BY:____________________DATE_______________20________

FORM 8

MANOR TIMBER COMPANY, INC.
DRIP PAD WEEKLY INSPECTION RECORD
DRIP PAD MUST BE INSPECTED WEEKLY AND AFTER STORMS

INSPECTED BY	DATE OF INSPECTION	QUANTITY REMOVED (LBS)	DETERIORATION MALFUNCTION, IMPROPER OPERATION OF CONTROL	ANY PRESENCE OR LEAKAGE IN THE LEAKAGE DETECTION SYSTEM	IS LEAKAGE DETECTION SYSTEM FUNCTIONING PROPERLY	ANY SURFACE DETERIORATI OR CRACKING

SECTION G. CONTINGENCY PLAN

This section does not apply to this facility per 40 CFR 270.14(b)(3).

SECTION H. PERSONNEL TRAINING

This section is optional and is not being included.

SECTION J. SOLID WASTE MANAGEMENT UNITS (SWMU)

No SWMU's have been identified at the facility.

SECTION J. SOLID WASTE MANAGEMENT UNITS (SWMU)

No SWMU's have been identified at the facility.

SECTION K. OTHER FEDERAL LAW 40 CFR 270.3

a) THE WILD AND SCENIC RIVERS ACT

This law is not applicable to the Manor Timber Company facility as it poses no adverse effect on the established values for national wild and scenic rivers.

b) THE NATIONAL HISTORIC PRESERVATION ACT OF 1966

This law is not applicable to the Manor Timber Company facility as it does not pose any adverse effect on properties listed or eligible for listing in the National Register of Historic Places.

c) THE ENDANGERED SPECIES ACT

This law is not applicable to the Manor Timber Company facility since it is located in an urban setting and does not appear to pose an environmental concern to the continued existence of any endangered or threatened species.

d) THE COASTAL ZONE MANAGEMENT ACT

The U.S. Congress passed the Coastal Zone Management Act (CZMA) in 1972 which included select areas within 250 miles of the coastal zone. This act, administered by the National Oceanic and Atmospheric Administration (NOAA), provides for the management of the nation's coastal resources, including the Great Lakes. The goal is to "preserve, protect, develop, and where possible, to restore or enhance the resources of the nation's coastal zone." The Georgia Coastal Management Program was approved by NOAA in 1998, with Georgia's Department of Natural Resources, Coastal Resources Division, serving as the lead agency. The Georgia Coastal Management Act authorized the creation of the Georgia Coastal Management Program. The Georgia coastal zone includes the state's six coastal counties and five "inland tier" counties, including Chatham, Effingham, Bryan, Liberty, McIntosh, Long, Glynn, Wayne, Brantley, Camden, and Charlton counties.

Since the facility is located in Clinch County, this act is not applicable.

e) THE FISH AND WILDLIFE COORDINATION ACT

This law is not applicable to the Manor Timber Company facility as it does not authorize the impoundment, diversion, or other control or modification of any body of water.

SECTION L. GEOLOGY CERTIFICATION

PART-B RENEWAL APPLICATION FOR POST CLOSURE CARE AND CORRECTIVE ACTION
JULY 2022 PART B PERMIT RENEWAL

MANOR TIMBER COMPANY
102 BLACK ANKLE ROAD, MANOR, CLINCH COUNTY
PERMIT NO. HW-047 (D)

GEOLOGY CERTIFICATION

I certify that I am a qualified ground-water scientist who has received a baccalaureate or post-graduate degree in the natural sciences or engineering, and have sufficient training and experience in ground-water hydrology and related fields, as demonstrated by state registration and completion of accredited university courses, that enable me to make sound professional judgments regarding ground-water monitoring and contaminant fate and transport. I further certify that this report was prepared by myself or by a subordinate working under my direction.

Kenneth C. Summerour, P.G. #1083
Registered Professional Geologist

Date : 6/28/2023

KENNETH C. SUMMEROUR
No. 1083
GEORGIA REGISTERED PROFESSIONAL GEOLOGIST

Professional Geologist Stamp/ Seal