COLLIERVILLE SITE

COLLIERVILLE, TENNESSEE

SITE: Carrier Air
BREAK: 3.10
OTHER: V2

FINAL REMEDIAL INVESTIGATION REPORT

VOLUME 2

EnSafe (SM)

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BORING LOGS

Depth (Feet)	Sample Type	Sample Location	% Recovery	SPT Blow Count/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
						Drilling Method: 4 Inch Solid Flight Augers Sampling Method: Hydraulically Pushed 12 Inch Split-Spoon Sampler (P)
0						Concrete floor
	SS		100	P		Brown SILTY CLAY; moist; crumbly
5						
	SS		42	P		(Very loose sample; appears to be fall-in material)
	SS		100	P		Light brown CLAYEY SILT; damp Brown SILTY CLAY; moist; with dark brown blebs
10						Boring terminated at 10 feet on 8-6-87.
						BORING TERMINATED ABOVE THE JACKSON CLAY
15						
20						

*Field-logged by Dames & Moore

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

SOIL BORING
T-1
August 1987

Depth (Feet)	Sample Type	Sample Location	% Recovery	SPT Blow Count/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
						Drilling Method: 4 Inch Solid Flight Augers Sampling Method: Hydraulically Pushed 12 Inch Split-Spoon Sampler (P)
0						Concrete floor
	SS		100	P		Brown SILTY CLAY, trace sand; moist
5						
	SS		100	P		Brown to light brown CLAYEY SILT, trace sand; streaks and blebs of dark brown mineralization or staining; moist
	SS		100	P		Mottled light brown and brown CLAY/SILTY CLAY; moist
10						Boring terminated at 10 feet on 8-6-87.
						BORING TERMINATED ABOVE THE JACKSON CLAY
15						
20						

*Field-logged by Dames & Moore

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COLLIERVILLE, TENNESSEE

SOIL BORING
T-2
August 1987

Depth (Feet)	Sample Type	Sample Location	% Recovery	SPT Blow Count/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
						Drilling Method: 4 Inch Solid Flight Augers Sampling Method: Hydraulically Pushed 12 Inch Split-Spoon Sampler (P)
0						Concrete floor
	SS		100	P		Greenish-gray SILTY CLAY; very stiff; moist
5						
	SS		83	P		Bluish-gray CLAYEY SILT; dark brown to olive blebs; moist
	SS		100	P		Greenish-gray SILTY CLAY; moist; dark brown staining/ mineralization at 9.8 feet
10						Boring terminated at 10 feet on 8-6-87. BORING TERMINATED ABOVE THE JACKSON CLAY
15						
20						

*Field-logged by Dames & Moore

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COLLIERVILLE, TENNESSEE

SOIL BORING
T-3
August 1987

Depth (Feet)	Sample Type	Sample Location	% Recovery	SPT Blow Count/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
						Drilling Method: 4 Inch Solid Flight Augers Sampling Method: Standard Penetration Sampling
0						Concrete floor slab
	SS		83	22		Light brown fine SAND and pea GRAVEL; and reddish-brown to brown CLAYEY SILT; trace roots (FILL)
	SS		100	17		Brown SILTY CLAY; moist; becomes mottled with gray at 4 feet
5						
						changes to medium to light gray with thin silt laminae and dark brown nodules
	SS		89	13		
10						becomes brown to yellowish-brown at 9.8 feet
	SS		100	28		becomes more silty at 14.7 feet
15						
						BORING TERMINATED ABOVE THE JACKSON CLAY
	SS		100	22		becomes light brown at 18.5 feet
20						Boring terminated at 20 feeton 8-3-87.

* Field-logged by Dames & Moore

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COLLIERVILLE, TENNESSEE

SOIL BORING
B-1
August 1987

Depth (Feet)	Sample Type	Sample Location	% Recovery	SPT Blow Count/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS *
						Drilling Method: 3 3/4 Inch I.D. Hollow Stem Augers Split-Spoon Samples Driven by Hand (HD)
0						Concrete floor slab
	SS		100	HD		Yellow-brown fine to medium-grained SAND; moist; and brown SILTY CLAY with some pea GRAVEL; moist; occasional blebs (red, gray, and dark brown) (FILL)
	SS		100	HD		Mottled light brown and gray SILTY CLAY; moist; occasional dark brown blebs; indistinct layering of more clayey material
5						
	SS		100	HD		Gray CLAY, some silt; trace sand; moist
10						Mottled brown SILTY CLAY; moist
	SS		100	HD		becomes light yellowish-brown with occasional dark brown blebs
15						
						BORING TERMINATED ABOVE THE JACKSON CLA
	SS		100	HD		becomes mottled light to dark brown with dark brown blebs
20						Boring terminated at 20 feet on 8-4-87.

* Field-logged by Dames & Moore

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

SOIL BORING
B-2
August 1987

Depth (Feet)	Sample Type	Sample Location	% Recovery	SPT Blow Count/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
						Drilling Method: 4 Inch Solid Flight Augers Split-Spoon Samples Driven by Hand
0						Concrete floor slab
	SS		78	HD		Light yellowish-brown medium-grainedSAND and pea GRAVEL; and dark brown SILTY CLA some gravel; very stiff; moist (FILL)
	SS		67	HD		Grayish-brown SILTY CLAY; crumbly; slightly moist
5						
	SS		100	HD		changes to mottled light brown and light gray with dark brown blebs becomes reddish-brown at 9.5 feet
10						
	SS		94	HD		changes to light brown; very stiff; moist
15						
						BORING TERMINATED ABOVE THE JACKSON CLAY
	SS		94	HD		changes to mottled light gray and brown with dark brown blebs; moist
20						
						Boring terminated at 20 feet on 8-4-87.

* Field-logged by Dames & Moore	CARRIER CORPORATION COLLIERVILLE, TENNESSEE	SOIL BORING B-3 August 1987

Depth (Feet)	Sample Type	Sample Location	% Recovery	SPT Blow Count/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
						Drilling Method: 4 Inch Solid Flight Augers Sampling Method: Standard Penetration Sampling
0						2 inch asphalt pavement
	SS		50	4		11 inches of brown SAND and GRAVEL; wet; 1 inch of asphalt; and 6 inches of brown CLAY, some silt; red sand laminae (FILL)
	SS		78	17		Mottled light brown with gray SILTY CLAY; moist
5						Gray CLAYEY SILT; crumbly; moist, at 4.9 feet
	SS		100	12		Light to medium-brown mottled SILTY CLAY; moist; dark brown blebs
10						
	SS		100	24		
15						BORING TERMINATED ABOVE THE JACKSON CLAY
	SS		89	36		Mottled light gray with reddish-brown CLAYEY SILT; moist
20						Boring terminated at 20 feet on 8-4-87.

* Field-logged by Dames & Moore

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

SOIL BORING
B-4
August 1987

Depth (Feet)	Sample Type	Sample Location	% Recovery	SPT Blow Count/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
						Drilling Method: 3 3/4 Inch I.D. Hollow-Stem Augers Sampling Method: Standard Penetration Method
0						2 inches ofasphalt pavement
	SS		83	14		Brown and red SAND and GRAVEL; very moist (FILL)
						Grayish-brown SILTY CLAY; moist
	SS		11	15		Brown and gray CLAYEY SILT; moist; streaked
5						
	SS		94	11		Mottled brown and gray SILTY CLAY; moist; black stained vertical fractures becomes brown with dark brown blebs at 9.5 feet
10						
	SS		83	14		becomes mottled brown and gray with dark brown blebs
15						
						BORING TERMINATED ABOVE THE JACKSON CLAY
	SS		100	14		changes to mottled light brown and gray; trace sand; moist; occasional black blebs
20						
						Boring terminated at 20 feet on 8-7-87.

* Field-logged by Dames & Moore	CARRIER CORPORATION COLLIERVILLE, TENNESSEE	SOIL BORING B-5 August 1987

Depth (Feet)	Sample Type	Sample Location	% Recovery	SPT Blow Count/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS *
						Drilling Method: 3 3/4 Inch I.D. Hollow-Stem Augers Sampling Method: Standard Penetration Sampling
0						2 inches of asphalt pavement over brown SAND and GRAVEL; some cinders (FILL)
	SS		61	18		Brown SILTY CLAY; moist; reddish-brown blebs becomes mottled with gray at 1.8 feet
						Greenish-gray CLAYEY SILT; moist
	SS		83	14		Bluish-gray SILTY CLAY; moist; brown blebs
5						
	SS		100	13		changes to mottled brown and gray; trace sand; some orange staining and dark brown blebs
10						
	SS		100	13		changes to light brown
15						
						BORING TERMINATED ABOVE THE JACKSON CLAY
	SS		94	16		Light gray SILTY CLAY/CLAYEY SILT; orange staining along fractures and in blebs becomes more light brown and clayey at 19.5 feet
20						Boring terminated at 20 feet on 8-7-87.

* Field-logged by Dames & Moore

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

SOIL BORING
B-6
August 1987

Depth (Feet)	Sample Type	Sample Location	% Recovery	SPT Blow Count/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
						Drilling Method: 3 3/4 Inch I.D. Hollow-Stem Augers Sampling Method: Standard Penetration Sampling
0						2 inches of asphalt pavement over sand and gravel fill
	SS		56	16		Brown SILTY CLAY; fairly stiff; gray coloring along bedding fractures; trace roots; moist
	SS		67	14		Bluish-gray CLAYEY SILT, trace sand; moist; reddish brown blebs; faint chemical odor
5						
	SS		89	13		Mottled (streaky) brown and gray SILTY CLAY; moist; occasional small dark brown blebs
10						
	SS		83	19		changes to light brown; trace orange staining; trace dark brown blebs
15						BORING TERMINATED ABOVE THE JACKSON CLAY
	SS		89	36		Light gray to tan CLAYEY SILT; orange staining; dark reddish brown blebs
20						Boring terminated at 20 feet on 8-7-87.

* Field-logged by Dames & Moore

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COLLIERVILLE, TENNESSEE

SOIL BORING
B-7
August 1987

Depth (Feet)	Sample Type	Sample Location	% Recovery	SPT Blow Count/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
						Drilling Method: 3 3/4 Inch I.D. Hollow -Stem Augers Sampling Method: Standard Penetration Sampling
0						2 inches of asphalt pavement
	SS		61	7		Orange-brown loose SAND and GRAVEL; wet; slight odor (FILL)
	SS		28	7		Bluish-gray SILTY CLAY; moist; reddish-brown blebs
5						
	SS		94	17		changes to brown (slightly mottled with gray)
10						
	SS		78	15		trace sand; sample breaks diagonally, but no fractures are apparent in undisturbed sample
15						BORING TERMINATED ABOVE THE JACKSON CLAY
	SS		78	10		0.4 foot orange-brown medium to coarse-grained SAND; moist; increasing silt and clay with depth becomes mottled gray with brown interbedded CLAYEY SAND and SILTY CLAY
20						Boring terminated at 20 feet on 8-10-87.

* Field-logged by Dames & Moore

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COLLIERVILLE, TENNESSEE

SOIL BORING
B-8
August 1987

Depth (Feet)	Sample Type	Sample Location	% Recovery	SPT Blow Count/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
						Drilling Method: 3 3/4 Inch I.D. Hollow -Stem Augers Sampling Method: Standard Penetration Sampling
0						3 inches of asphalt pavement and dark brown and red SAND and GRAVEL; very moist (FIL
	SS		87	20		Mottled brown and gray SILTY CLAY; moist; dark brown blebs; slight chemical odor
	SS		28	15		Bluish-gray CLAYEY SILT, trace sand, trace roots; moist; occasional reddish-brown blebs
5						
	SS		100	12		Mottled brown and light gray SILTY CLAY; moist; strong chemical odor
10						
	SS		100	17		Light brown to tan CLAYEY SILT; moist; slight odor
15						BORING TERMINATED ABOVE THE JACKSON CLAY
	SS		87	22		Mottled light brown and gray SILTY CLAY; moist; strong chemical odor; heavy orange staining at 19.7 feet
20						Boring terminated at 20 feet on 8-10-87.

* Field-logged by Dames & Moore

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COLLIERVILLE, TENNESSEE

SOIL BORING
B-9
August 1987

Depth (Feet)	Sample Type	Sample Location	% Recovery	SPT Blow Count/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
						Drilling Method: 3 3/4 Inch I.D. Hollow-Stem Augers Sampling Method: Standard Penetration Sampling
0						Asphalt pavement
						Brown CLAYEY SILT, trace sand; moist; crumbly
	SS		78	21		Mottled brown and gray SILTY CLAY; light gray along fractures; black and reddish-brown blebs
	SS		89	15		Brown CLAYEY SILT, trace sand; moist changes to bluish-gray; roots; reddish-brown blebs at 4.5 feet
5						
	SS		83	22		Mottled brown and gray SILTY CLAY; moist; some orange-brown staining
10						
	SS		83	19		Mottled light brown and gray CLAYEY SILT; moist; slight dark staining and rare blebs
15						
						BORING TERMINATED ABOVE THE JACKSON CLAY
	SS		100	27		changes to light brown to tan; trace fine sand; some orange staining; some black staining along fine fractures
20						
						Boring terminated at 20 feet on 8-11-87.

* Field-logged by Dames & Moore

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COLLIERVILLE, TENNESSEE

SOIL BORING
B-10
August 1987

Depth (Feet)	Sample Type	Sample Location	% Recovery	SPT Blow Count/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
						Drilling Method: 3 3/4 Inch I.D. Hollow-Stem Augers Sampling Method: Standard Penetration Sampling
0						Asphalt pavement
						Brown SAND and GRAVEL (FILL)
	SS		78	23		Brown SILTY CLAY; moist; gray along fractures and in 2 inch zone at 1.7 feet
						dark staining at contact
	SS		89	8		Bluish-gray CLAYEY SILT, trace sand; moist; reddish-brown blebs
5						
	SS		100	14		Mottled brown and tan SILTY CLAY; moist
10						
	SS		89	27		Mottled tan to light brown, orange-brown, and dark brown CLAYEY SILT, trace sand; orange-brown blebs
15						
						BORING TERMINATED ABOVE THE JACKSON CLAY
						changes to light gray, orange stained; moist; dark brown blebs
	SS		100	22		
20						
						Boring terminated at 20 feet on 8-11-87.

* Field-logged by Dames & Moore

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

SOIL BORING
B-11
August 1987

Depth (Feet)	Sample Type	Sample Location	% Recovery	SPT Blow Count/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
						Drilling Method: 3 3/4 Inch I.D. Hollow-Stem Augers Sampling Method: Standard Penetration Sampling
0						Asphalt pavement and brown SAND and GRAVEL (FILL)
	SS		67	15		Brown SILTY CLAY; moist; reddish-brown and dark brown blebs
	SS		50	5		
5						
	SS		100	15		changes to light tan; black staining along vertical fractures; tiny dark blebs
10						
	SS		100	17		changes to brown to tan; slight black staining near bottom of sample
15						
						BORING TERMINATED ABOVE THE JACKSON CLAY
	SS		100	21		changes to mottled tan, light gray, and orange-brown; becomes more silty and dark brown with depth
20						
						Boring terminated at 20 feet on 8-11-87.

* Field-logged by Dames & Moore

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

SOIL BORING
B-12
August 1987

Depth (Feet)	Sample Type	Sample Location	% Recovery	SPT Blow Count/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
						Drilling Method: 3 3/4 Inch I.D. Hollow-Stem Augers Sampling Method: Standard Penetration Sampling
0						Asphalt pavement and brown SAND and GRAVEL (FILL)
	SS		83	7		Brown SILTY CLAY; moist; trace roots; dark reddish-brown blebs; gray coloring along bedding fracture at 1.0 foot
	SS		28	4		
5						
						changes to mottled light brown and gray; dark brown blebs
	SS		100	5		
10						Light brown, medium-grained, poorly graded SAND; moist; faint odor
						Mottled light brown and gray SILTY CLAY; moist
						changes to mixed tan with light gray and orange brown; trace dark brown blebs
	SS		100	10		
15						
						BORING TERMINATED ABOVE THE JACKSON CLAY
	SS		100	17		Light brown CLAYEY SILT; crumbles slightly; moist; small amount of orange-brown staining
20						Boring terminated at 20 feeton 8-11-87.

* Field-logged by Dames & Moore

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

SOIL BORING
B-13
August 1987

Depth (Feet)	Sample Type	Sample Location	% Recovery	SPT Blow Count/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
						Drilling Method: 3 3/4 Inch I.D. Hollow-Stem Augers Sampling Method: Standard Penetration Sampling
0	SS		39	12		Asphalt pavement; gray and brown SILTY CLAY layer, and reddish-brown SAND and GRAVEL (FILL)
5	SS		67	11		Light brown SILTY CLAY; moist; colored gray along occasional bedding fractures; contains numerous small reddish-brown blebs and streaks
10	SS		100	13		changes to mottled brown and gray; becomes darker brown with depth; occasional dark brown to black blebs
15	SS		100	24		increasing fine sand fraction
						Brown SANDY SILT; moist; slight orange staining
						BORING TERMINATED ABOVE THE JACKSON CLAY
20	SS		83	16		Light gray SANDY CLAY; moist; occasional reddish-brown blebs 0.2 feet light gray, fine to medium-grained SAND layer at 19.5 feet
						Boring terminated at 20 feet on 8-11-87.

* Field-logged by Dames & Moore

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

SOIL BORING
B-14
August 1987

Depth (Feet)	Sample Type	Sample Location	% Recovery	SPT Blow Count/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS *
						Drilling Method: 3 3/4 Inch I.D. Hollow-Stem Augers Sampling Method: Standard Penetration Sampling
0						
	SS		67	31		Brown CLAYEY SILT, trace sand; trace roots; moist
5						
	SS		100	23		becomes reddish-brown and grades to a less silty clay
10						
	SS		100	22		Red SAND, some silt and clay; moist
						Mottled light brown and yellow brown SANDY CLAY
15						BORING TERMINATED ABOVE THE JACKSON CLAY
	SS		89	26		Yellow, poorly graded, fine-grained SAND, trace silt; moist
20						Boring terminated at 20 feet on 8-12-87.

* Field-logged by Dames & Moore

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

SOIL BORING
B-15
August 1987

Depth (Feet)	Sample Type	Sample Location	% Recovery	SPT Blow Count/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS *
						Drilling Method: 3 3/4 Inch I.D. Hollow-Stem Augers Sampling Method: Standard Penetration Sampling
0						Asphalt pavement and brown SAND and GRAVEL (FILL)
						Brown SILTY CLAY; moist
	SS		61	20		Light brown CLAYEY SILT; moist; numerous reddish-brown blebs
	SS		78	8		Mottled light brown and tan SILTY CLAY; moist; reddish-brown blebs and dark brown staining at 4.5 feet
5						
	SS		100	23		changes to brown; light gray silt filling in thin, near-vertical fracture
10						
	SS		78	21		Tan CLAYEY SILT, some fine sand; moist; orange staining below 14.5 feet
15						
						BORING TERMINATED ABOVE THE JACKSON CLAY
	SS		100	25		grades to light gray; reddish-brown blebs; increasing sand and trace gravel with depth
20						
						Boring terminated at 20 feet on 8-12-87.

* Field-logged by Dames & Moore	CARRIER CORPORATION COLLIERVILLE, TENNESSEE	SOIL BORING B-16 August 1987

Depth (Feet)	Sample Type	Sample Location	% Recovery	SPT Blow Count/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
						Drilling Method: 3 3/4 Inch I.D. Hollow-Stem Augers Sampling Method: Standard Penetration Sampling
0						
	SS		100	20		Brown CLAYEY SILT; moist; strong chemical odor
5						
	SS		100	24		becomes mottled light brown with gray; occasional orange and dark brown blebs; some dark brown staining; contained chemical odor
10						
	SS		100	12		Brown SANDY CLAY; moist; some red and light gray coloring; moderate chemical odor
15						BORING TERMINATED ABOVE THE JACKSON CLAY
	SS		100	52		Light gray, fine to medium-grained SAND, trace silt; moist; streaks (diagonal) of red blebs; moderate chemical odor; becomes finer grained at 19.8 feet
20						Boring terminated at 20 feet on 8-24-87.

* Field-logged by Dames & Moore

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

SOIL BORING
B-17
August 1987

Depth (Ft.	Sample Type	Sample Location	% Recovery	SPT Blow Count/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
						Drilling Method: 3 3/4 Inch I.D. Hollow-Stem Augers Sampling Method: Standard Penetration Sampling
0						
	SS		100	19		Brown CLAYEY SILT; moist; moderate chemical odor
5						
	SS		100	18		Brown SILTY CLAY; moist; dark brown to black staining or blebs along apparent diagonal fracture zone; strong chemical odor
10						
	SS		83	45		Mottled orange, brown, and gray, trace red SANDY CLAY; moist; mild chemical odor
15						BORING TERMINATED ABOVE THE JACKSON CLAY
	SS		100	76		Light gray, fine to medium-grained SILTY SAND; moist; red and orange blebs; mild chemical odor
20						
						Boring terminated at 20 feet on 8-24-87.

* Field-logged by Dames & Moore

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

SOIL BORING
B-18
August 1987

Depth (Feet)	Sample Type	Sample Location	% Recovery	SPT Blow Count/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
						Drilling Method: 3 3/4 Inch I.D. Hollow-Stem Augers Sampling Method: Standard Penetration Sampling
0						
	SS		50	16		Brown CLAYEY SILT; moist; moderate chemical odor
5						
	SS		100	16		Mottled brown, orange-brown, and gray SILTY CLAY; moist; mild chemical odor
10						
	SS		100	36		Orange brown to brown SANDY CLAY with irregular zones of silty sand; moist; moderate chemical odor
15						BORING TERMINATED ABOVE THE JACKSON CLAY
	SS		100	61		Gray with red staining fine to medium-grained SAND, trace silt; moist
20						Boring terminated at 20 feet on 8-24-87.

* Field-logged by Dames & Moore

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

SOIL BORING
B-19
August 1987

Depth (Feet)	Sample Type	Sample Location	% Recovery	SPT Blow Count/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
						Drilling Method: 3 3/4 Inch I.D. Hollow-Stem Augers
0	SS		67	30		Light brown and gray SANDY CLAYEY SILT; damp; roots present (TOPSOIL)
5	SS		78	11		Brown SILTY CLAY; moist; thin, vertical to diagonal gray silt laminations; occasional dark brown blebs
10	SS		100	21		Brown CLAYEY SILT; silty orange and gray blebs; occasional dark brown staining or blebs; moist
						Boring terminated at 10 feet on 8-24-87.
						BORING TERMINATED ABOVE THE JACKSON CLAY
15						
20						

* Field-logged by Dames & Moore

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

SOIL BORING
B-20
August 1987

Depth (Feet)	Sample Type	Sample Location	% Recovery	SPT. Blow Count/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
						Drilling Method: 4 inch Solid Flight Auger Sampling Method: 18 inch Split Spoon
0						Asphalt
	SS		0	21		Reddish-brown SAND and GRAVEL (FILL)
	SS		67	17		Mottled gray with brown SILT, some CLAY; moist grades with increasing silt
5						
	SS		100	11		Mottled light gray and medium brown SILTY CLAY with dark organic stains
10						
	SS		100	13		becomes more brown
15						
	SS		61	14		becomes mottled brown and gray; moist
20						

* Field-logged by ENSAFE

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

SOIL BORING
B-21

March 1988

Depth (Feet)	Sample Type	Sample Location	% Recovery	SPT Blow Count/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
						Drilling Method: 4 Inch Solid Flight Auger Sampling Method: 18 Inch Split Spoon
20	ST					Mottled and medium brown SILTY CLAY with dark organic stains
	SS		94	39		Light gray (fine-grained SILTY SAND) 1 Inch layer black organic material at 4.5 feet. White and orange, fine-grained,poorly-graded SAND, trace of silt
25						
	SS		94	58		grades from light brown to white, occasional chert fragments; damp
30						
	SS		100	38		iron-stained with trace of gravel at 33.5 feet grades with more gravel at 34.5 feet
35						
	SS		100	46		interbedded yellowish-orange to reddish-brown SILTY CLAY andSAND andGRAVEL
40						Gray and brown CLAY; stiff ⟵ JACKSON CLAY

* Field-logged by ENSAFE

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

SOIL BORING
B-21

March 1988

Depth (Feet)	Sample Type	Sample Location	% Recovery	SPT Blow Count/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
						Drilling Method: 4 Inch Solid Flight Auger Sampling Method: 18" InchSplit Spoon
40						Gray and brown CLAY; stiff
	SS		100	11		
45	ST					
						Boring terminated at 47 feet on 11-2-87.
50						
55						
60						

* Field-logged by ENSAFE

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

SOIL BORING
B-21

March 1988

Depth (Feet)	Sample Type	Sample Location	% Recovery	SPT Blow Count/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
						Drilling Method: 4 Inch Solid Flight Auger Sampling Method: 18 InchSplit Spoon
0						Asphalt pavement
	SS		39	33		Dark brown SAND and GRAVEL (FILL), some silt
	SS		67	18		Mottled light brown and gray CLAYEY SILT with some iron stains
5						
	SS		100	9		abundant brown blebs and organics
10						
	SS		100	19		Medium brown to gray SILTY CLAY; moist.
15						
	SS		100	21		some iron stains BORING TERMINATED ABOVE THE JACKSON CLAY
20						Boring terminated at 20 feet on 11-3-87.

* Field-logged by ENSAFE

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

SOIL BORING
B-22

March 1988

Depth (Feet)	Sample Type	Sample Location	% Recovery	SPT Blow Count/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
						Drilling Method: 4 Inch Solid Flight Auger Sampling Method: 18 InchSplit Spoon
0	SS		56	14		Gray CLAYEY SILT with some iron staining, trace of asphalt
	SS		67	14		grades to mottled light brown and gray with reddish-brown blebs
5						
	SS		100	22		Medium to dark brown SILTY CLAY with light gray blebs, trace of sand; moist
10						
	SS		56	21		grades to mottled light brown and gray with some orange-red staining
15						BORING TERMINATED ABOVE THE JACKSON CLAY
	SS		78	21		Gray SANDY SILT to SILTY CLAY with some iron staining and chert fragments
20						Boring terminated at 20 feet on 11-2-87.

* Field-logged by ENSAFE

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

SOIL BORING
B-23

March 1988

Depth (Feet)	Sample Type	Sample Location	% Recovery	SPT Blow Count/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
						Drilling Method: 4 Inch Solid Flight Auger Sampling Method: 18 InchSplit Spoon
0						Asphalt pavement
	SS		67	25		Medium to dark brown CLAYEY SILT with trace of gray silt, occasional iron stains and some asphalt; damp
	SS		67	13		grades to mottled dark brown and light brown with trace of sand
5						
	SS		100	22		becomes moist at 19 feet
10						
	SS		100	19		grades to mottled light brown and gray with dark organic blebs at 14 feet, trace of sand at 15 feet
15						
	SS		100	21		Light gray fine-grained SANDY SILT with abundant iron stains
20						Reddish-orange to light gray SILTY SAND, trace clay; moist

* Field-logged by Dames & Moore

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

SOIL BORING
B-24

March 1988

Depth (F	Sample Type	Sample Location	% Recovery	SPT Blow Count/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
						Drilling Method: 4 Inch Solid Flight Auger Sampling Method: 18 InchSplit Spoon
20						Reddish-orange to light gray SILTY SAND, trace clay; moist
						abundant orange bleb
						become light gray with increasing clay
	SS		100	60		Light gray SAN and GRAVEL
25						
						grades to a dark orange-brown
	SS		100	71		poorly graded sand from 29.0 to 29.5 feet; wet
30						Orange-brown medium-grained poorly sorted SAND with some gravel, trace silt
						Orange-brown fine medium-grained SAND; DAMP
	SS		100	64		increasing gravel from 34 feet dark brown to black staining at 34.8 feet
35						
	SS		100	40		becomes yellow-orange to yellow with some gravel at 39.5 feet and few dark blebs
40						

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

SOIL BORING
B-24

* Field-logged by Dames & Moore

March 1988

Depth (Feet)	Sample Type	Sample Location	% Recovery	SPT Blow Count/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
						Drilling Method: 4" Solid Flight Auger Sampling Method: 18" Split Spoon
40						Medium-grained, well graded SAND with some gravel and trace silt
	SS		100	90		becomes orange-brown and medium to coarse-grained
45						
	SS		100	75		becoming mixed orange and white with trace gravel
50						
						becomes white to light gray and fine-grained with trace clay; wet at 53.5 feet
	SS		100	12		Light gray CLAY with maroon streaks; moist ← JACKSON CLAY
55	ST					
						Boring terminated at 57 feet on 11-3-87.
60						

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

SOIL BORING
B-24

* Field-logged by Dames & Moore

March 1988

Depth (Feet)	Sample Type	Sample Location	% Recovery	SPT Blow Count/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
						Drilling Method: 4 Inch Solid Flight Auger Sampling Method: 18 Inch Split Spoon
0						Asphalt Pavement
	SS		78	12		Medium brown to gray SILTY CLAY with some iron staining, trace of asphalt; moist
	SS		89	12		Mottled light gray and brown CLAYEY SILT, some iron stains; moist
5						
	SS		100	10		some dark organic stains at 9 feet becomes dark brown
10						
	SS		100	28		becomes mottled light tan and gray becomesdry at 14 feet
15						
						BORING TERMINATED ABOVE THE JACKSON CLAY
	SS		100	33		trace of sand at 20 feet
20						Boring terminated at 20 feet on 11-3-87.

* Field-logged by ENSAFE

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

SOIL BORING
B-25

March 1988

Depth (Feet)	Sample Type	Sample Location	% Recovery	SPT Blow Count/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
						Drilling Method: 4 Inch Solid Flight Augers Sampling Method: 18 Inch Split Spoon
0						Concrete Floor
						Orange-brown to brown medium-grained SAND and SILTY CLAY (FILL) with trace fine gravel
	SS		56	16		Mottled light brown to dark brown SILTY CLAY with dark brown blebs damp
	SS		67	15		
5						
	SS		89	16		
10						
	SS		78	-		dark organic streak from 14.3 to 14.5 feet
15						
	SS		100	21		mottled light brown and gray abundant dark brown stains at 19.5 to 20 feet
20						

* Field-logged by ENSAFE

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

SOIL BORING
B-26

March 1988

Depth (Feet)	Sample Type	Sample Location	% Recovery	SPT Blow Count/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
						Drilling Method: 4 Inch Solid Flight Auger Sampling Method: 18 InchSplit Spoon
20						Light gray to dark brown SILTY CLAY with dark brown blebs trace of sand at 23.5 feet
	SS		100	20		Light gray to dark brown SILTY SAND with yellow staining
25						
	SS		89	59		white and brownish-black fine to medium-grainedSAND becomes yellowish-white and fine-grained with gravel fragments at 29.1 feet
30						
	SS		100	59		becomes yellowish-orange, with clay lens at 33.7 feet becomes yellow to yellow-white, with some rock fragments with dark blebs
35						
	SS		-	8		Light brown SILTY CLAY, trace sand, with dark organics at 39.5 feet; moist<-JACKSON CLA
40						

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

SOIL BORING
B-26

* Field-logged by ENSAFE

March 1988

Depth (Feet)	Sample Type	Sample Location	% Recovery	SPT Blow Count/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
						Drilling Method: 4 InchSolid Flight Auger Sampling Method: 18 Inch Split Spoon
40						Light brown SILTY CLAY with trace sand; moist
	ST	X	-	-		Tan and gray CLAY with trace sand, maroon streaks
45						Boring terminated at 45 feet on 11-4-87.
50						
55						
60						

* Field-logged by ENSAFE

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

SOIL BORING
B-26

March 1988

Depth (Feet)	Sample Type	Sample Location	% Recovery	SPT Blow Count/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
						Drilling Method: 4 Inch Solid Flight Auger Sampling Method: 18 Inch Split Spoon
0						Asphalt pavement
	SS		67	7		Medium to dark brown CLAYEY SILT, medium SAND and GRAVEL (FILL) with some asphalt and trace of gray silt
						Dark brown to gray CLAYEY SILT
	SS		56	11		
5						
						becomes mottled to light gray
	SS		100	12		
10						
	SS					
15						some iron staining at 15 feet
						mottled with brown at 18.5 feet
	SS		67	12		gray silt with trace sand at 19.8 feet
20						

* Field-logged by ENSAFE

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

SOIL BORING
B-27

March 1988

Depth (Feet)	Sample Type	Sample Location	% Recovery	SPT Blow Count/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
						Drilling Method: 4 Inch Solid Flight Auger Sampling Method: 18 Inch Split Spoon
20						Dark brown to gray CLAYEY SILT
	SS		100	48		Yellowish-orange to white fine-graded, poorly-graded SAND with some organics at 25 feet
25						
	SS		100	56		becomes medium-grained, with fine gravel intermixed trace of clay at 29.8 feet
30						
	SS		100	63		becomes dark orange to brown with trace of silt
35						
	SS			49		becomes medium- to coarse-grained with gavel and a trace of silt
40						

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

SOIL BORING
B-27

* Field-logged by Dames & Moore

March 1988

Depth (Feet)	Sample Type	Sample Location	% Recovery	SPT Blow Count/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
						Drilling Method: 4 Inch Solid Flight Auger Sampling Method: 18 Inch Split Spoon
40						Yellowish-orange to white, well-graded SAND
	SS		100	34		becomes moist at 44 feet
45						
	SS		100	70		becomes light yellow to orange becomes brownish-orange at 49.5 feet
50						
						becomes medium-grained, poorly graded
	SS		100	10		becomes wet at 54 feet
						SANDY CLAY
55						Light gray CLAY with maroon streaks; moist
	ST					
						Boring terminated at 57 feet on 11-3-57. ⟵ JACKSON CLAY
60						

* Field-logged by ENSAFE

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

SOIL BORING
B-27

March 1988

Depth (Feet)	Sample Type	Sample Location	% Recovery	SPT Blow Count/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
						Drilling Method: 4 Inch Solid Flight Auger Sampling Method: 18" InchSplit Spoon
0	SS		100	18		Medium-brown to light gray CLAYEY SILT with some plant roots and occasional red-brown stains
	SS		78	28		
5						
	SS		100	18		becomes mottled brown and gray with dark organic stains
10						
	SS		100	19		becomes sandy at 14.5 feet, with dark organic blebs and iron oxide stains
15						
	SS		100	16		Light gray SANDY CLAY ⟵ JACKSON CLAY
						Gray SILTY CLAY
20						Boring terminated at 20 feet on 11-4-87.

* Field-logged by ENSAFE

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

SOIL BORING
B-28

March 1988

Depth (Feet)	Sample Type	Sample Location	% Recovery	SPT Blow Count/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
						Drilling Method: 4 Inch Solid Flight Auger Sampling Method: 18 Inch Split Spoon
0	SS		100	63		Mottled light brown and gray to orange CLAYEY SILT with some plant roots
	SS		100	27		
5						Medium-brown SILTY CLAY with dark organic stains
	SS		100	31		occasional blebs of light gray silt brownish-gray clay lens at 9.6 to 9.9 feet
10						
	SS		100	38		Light tan and gray SILT with a trace of fine sand
15						BORING TERMINATED ABOVE THE JACKSON CLAY
						Medium-brown to light tan CLAYEY SILT
	SS		100	17		Orange-brown coarse-grained SAND with some pea gravel
						Light gray SILTY CLAY with trace of fine sand
20						Boring terminated at 20 feet on 11-18-87.

*Field-logged by ENSAFE

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

SOIL BORING
B-29

March 1988

Depth ( )	Sample Type	Sample Location	% Recovery	SPT Blow Count/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
						Drilling Method: 4 Inch Solid Flight Auger Sampling Method: 18 Inch Split Spoon
0	SS		89	14		Light brown to gray CLAYEY SILT to SILT with trace of sand and some rust-colored blebs from 1.5 to 2.0 feet
	SS		100	23		becomes mottled light tan and gray with trace clay
5						
	SS		100	40		becomes light tan to light brown with dark organic blebs at 9.5 feet; moist grades to SANDY SILT
10						
	SS		100	27		Light orange-brown SILTY SAND sharp contact to light gray at 14 feet
15						
	SS		100	16		Medium brown to tannish-gray very SANDY CLAY
20						

*Field-logged by ENSAFE

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

SOIL BORING
B-30

March 1988

Depth (Feet)	Sample Type	Sample Location	% Recovery	SPT Blow Count/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
						Drilling Method: 4 Inch Solid Flight Auger Sampling Method: 18 Inch Split Spoon
20						Medium-brown to tannish-gray very SANDY CLAY
	SS		100	87		Orange-brown to orange, medium- to coarse-grained SAND with some gravel, trace of silt; moist
25						
	SS		89	61		some pea gravel at 29.8 to 30.0 feet dark brown medium-grained sand layer at 29.2 to 29.4 feet
30						
	SS		94	79		becomes well graded; damp
35						
	SS		100	59		becomes moist at 39 feet
40						

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

SOIL BORING
B-30

*Field-logged by ENSAFE

March 1988

Depth (Feet)	Sample Type	Sample Location	% Recovery	SPT Blow Count/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
						Drilling Method: 4 Inch Solid Flight Auger Sampling Method: 18 Inch Split Spoon
40						Orange-brown to orange, medium-grained SAND with some gravel and some silt
	SS		100	45		
45						
	SS		89	40		Orange-brown, medium-grained, poorly-graded SAND; moist
	SS		100	75+		Orange-brown to light gray , medium- to coarse-grained, well-graded SAND; wet clay lens at 49.5 feet
50						
	SS		100	50		
	SS		100	38		becomes coarse-grained with fine gravel and very wet
55						
	SS		100	57		alternating light gray and orange brown light gray stringer of clay at 57 feet ironstone fragments at 57.2 feet
	SS		100	97		
60						

*Field-logged by ENSAFE

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

SOIL BORING
B-30

March 1988

Depth (Feet)	Sample Type	Sample Location	% Recovery	SPT Blow Count/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS**
						Drilling Method: 4 Inch Solid Flight Auger Sampling Method: 18 Inch Split Spoon
60						Light orange, fine-grained SAND, wet ⟵ MEMPHIS SANDS
	SS		100	51		
	SS		100	80		becomes pinkish-tan at 64.7 feet
65						
	SS		100	80+		Clean white to grayish-white, fine-grained, poorly-graded SAND; wet (sample 66-67.5 feet taken using 2 inch hollow stem auger)
	SS		100	*		
70						
	SS		100	*		
	SS		100	*		
75						
						* Samples were taken after the plug was removed. Boring terminated at 75 feet on 11-20-87

**Field-logged by ENSAFE

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

SOIL BORING
B-30

March 1988

Depth (Feet)	Sample Type	Sample Location	% Recovery	SPT Blow Count/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
						Drilling Method: 4 1/4 inch I.D. Hollow-Stem Augers Sample Method: 18 inch Split Spoon
0	SS		78	29		Gray SILT with little clay, some black asphalt blebs with orange staining at 0.5 - 1.2 feet
	SS		100	16		becomes mottled brown and gray with iron oxide stains, moist
5						
	SS		100	24		becomes more clayey
10						
	SS		100	21		becomes light tan and sandy, slight orange staining
15						
						BORING TERMINATED ABOVE THE JACKSON CLAY
						becomes gray with some fine gravel
	SS		100	10		Gray sandy CLAY with little sand, some dark staining
20						Boring terminated at 20 feet on 4-5-88

*Field-Logged by ENSAFE

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

SOIL BORING
B-31

June, 1988

Depth (Feet)	Sample Type	Sample Location	% Recovery	SPT Blow Count/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
						Drilling Method: 4 1/4 inch I.D. Hollow-Stem Augers Sample Method: 18 inch Split Spoon
0	SS		67	21		Red SAND and GRAVEL with some asphalt (fill)
5	SS		89	16		Brown SILT with little clay becomes gray with some orange stains
10	SS		100	22		becomes mottled brown and gray with dark stains throughout
15	SS		100	23		becomes tan with more clay and trace of sand, moist
						BORING TERMINATED ABOVE THE JACKSON CLAY
20	SS					Light gray fine SAND with silt; moist
						Boring terminated at 20 feet on 4-5-88

*Field-Logged by ENSAFE

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

SOIL BORING
B-32

June, 1988

Depth (Feet)	Sample Type	Sample Location	% Recovery	SPT Blow Count/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
						Drilling Method: 4 1/4 inch I.D. Hollow Stem Augers Sample Method: 18 inch Split Spoon
0	SS		67	3		Brown clayey SILT, mottled with gray, some root hairs
	SS		100	3		becomes gray with less silt; moist
5						
	SS		100	10		becomes mottled with brown and gray; moist
10						
	SS		100	11		becomes more gray in color
15						
						BORING TERMINATED ABOVE THE JACKSON CLAY
	SS		100	11		becomes mottled brown and gray with trace of sand and fine gravel some iron oxide stains
20						
						Boring terminated at 20 feet on 4-5-88

*Field-Logged by ENSAFE

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

SOIL BORING
B-33

June, 1988

DESCRIPTION OF SUBSURFACE MATERIALS*

Drilling Method: 4 1/4 inch I.D. Hollow-Stem Augers
Sample Method: 18 inch Split Spoon

Depth (Feet)	Sample Type	Sample Location	% Recovery	SPT Blow Count/ft.	USCS Symbol	
0	SS					Brown clayey SILT; no split spoon driven
	SS		78	26		becomes mottled brown and gray with less clay
5						
	SS		100	26		becomes tan
10						
	SS		78	25		becomes mottled with orange and gray
15						
	SS		89	18		becomes interbedded with clay and sand
20						

*Field-Logged by ENSAFE

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

SOIL BORING
B-34

June, 1988

Depth (Feet)	Sample Type	Sample Location	% Recovery	SPT Blow Count/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
						Drilling Method: 4 1/4 inch I.D. Hollow-Stem Augers Sample Method: 18 inch Split Spoon
20	SS					
	SS		72	44		Gray, medium to coarse-grained SAND with some clay, stained with orange and tan streaks
25						
	SS		67	82		becomes well-sorted medium-grained sand
30						
	SS		47	105		becomes fine to medium-grained, mottled with gold, orange, and black with tan streaking; rock fragments up to 1 inch in diameter
35						
	SS		100	12		Dark brown CLAY mottled with red and tan streaks ⟵ JACKSON CLAY
40						Boring terminated at 40 feet on 4-27-88

*Field-Logged by ENSAFE

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

SOIL BORING
B-34

June, 1988

Depth (Feet)	Sample Type	Sample Location	% Recovery	SPT Blow Count/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
						Drilling Method: 4 1/4 inch I.D. Hollow-Stem Augers Sample Method: 18 inch Split Spoon
0	SS					Brown clayey SILT; no split-spoon sample taken
	SS		33	8		
5						
	SS					Tan CLAY with little silt, mottled with black stains
10						
	SS					Gray clayey SILT mottled with orange; moist
15						
	SS					Gray sandy, silty, CLAY mottled with orange; strong TCE odor
20						

*Field-Logged by ENSAFE

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

SOIL BORING
B-35

June, 1988

Depth (Feet)	Sample Type	Sample Location	% Recovery	SPT Blow Count/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS
						Drilling Method: 4 1/4" ID Hollow Stem Augers Sample Method: 18" Split Spoon
20	SS					
	SS		67	68		Orange, medium to coarse-grained SAND mottled with black and rust colored streaks
25						
	SS		44	100		becomes mottled with tan; TCE odor
30						
	SS		67	80		becomes fine-grained sand with gravel
35						
						becomes orange
	SS		67	18		CLAY encountered at 39.0 feet ⟵ JACKSON CLAY
40						

*Field-Logged by ENSAFE	CARRIER CORPORATION COLLIERVILLE, TENNESSEE	SOIL BORING B-35 June, 1988

Depth (Feet)	Sample Type	Sample Location	% Recovery	SPT Blow Count/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
						Drilling Method: 4 1/4 inch I.D. Hollow Stem-Augers Sample Method: 18 inch Split Spoon
40						
	SS		100	12		Light brown CLAY mottled with red and gray streaks
45						Boring terminated at 45 feet on 4-27-88
50						
55						
40						

*Field-Logged by ENSAFE

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

SOIL BORING
B-35

June, 1988

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
SURFACE					GRASSY
5					
	SS	83	25	0.2	BROWN TO TAN SANDY SILT, TRACE OF CLAY ROCK FRAGMENTS APPROXIMATELY 7.0 FT.
10					
15	SS	83	48	0.2	BROWN SILTY CLAY, SOME ORGANIC STREAKS, @ 15.1' BECOMES ORANGE TO RUST COLORED FINE TO MEDIUM GRAINED SAND
	SS	42	66	0.0	GRADATIONAL BANDS OF WHITE AND RUST SAND, MEDIUM TO FINE GRAINED WITH ABUNDANT GRAVEL
20					
	SS	88	55	0.2	ORANGE TO RUST SAND AND GRAVEL SOME IRON AT APPROXIMATELY 23.5 FT.
25					
30					
	SS	79	125	0.2	ORANGE, MEDIUM GRAINED, MODERATELY SORTED MOIST SAND, GRAVEL FRAGMENTS, IRON AT APPROX. 31.0 FT.
35					
40	SS	100	74	0.2	38.0'-38.6' MEDIUM GRAINED ORANGE SAND & GRAVEL, POORLY SORTED 38.6'-39.0' LT. TAN WELL SORTED FINE TO MEDIUM GRAINED SAND, MOIST 39.0'-40.0' ORANGE WELL SORTED FINE GRAINED SAND
45					
	SS	83	17	0.2	FINE TO MEDIUM GRAINED MODERATELY SORTED SAND, RUST TO BROWN COLOR, @ 47.6 FT. BECOMES SANDY CLAY WITH SOME ROCK FRAGMENTS, ← JACKSON CLAY @ 47.9 FT. CLAY-TIGHT-GRAY & MAROON-TYPICAL OF JACKSON CLAY
50					BORING TERMINATED @ 48.0'

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B-37
COLLIERVILLE SITE
COLLIERVILLE, TN.

DWG DATE: 10/02/90 | DWG NAME: CARWELL1

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
SURFACE					ASPHALT
5					SAMPLE B38-1 SPLIT WITH BLACK & VEATCH
	SS	50	15	120	MOTTLED GRAY AND BROWN SLIGHTLY CLAYEY SILT
10	SS	75	28	230	MEDIUM BROWN TO LIGHT BROWN SLIGHTLY CLAYEY SILT, SOME TRACES OF GRAVEL(FILL?) SOME ORGANIC STAINS @ 9.0'
15	SS	100	31	0.0	MOTTLED GRAY AND BROWN SILT, SOME ORGANIC SPECKS @ 14.5' ALSO SOME RUST STREAKS
20					
25	SS	100	60	80	LIGHT TAN SILT-TRACE OF SAND, IRON CONCRETION ABOVE SAND @ 23.5', MEDIUM ORANGE WELL SORTED FINE GRAINED SAND
30	SS	100	95	6	WHITE TO ORANGE FINE TO MEDIUM GRAINED SAND WITH CHERT NODULES @ 31.0', SOME IRON STAINS AND ORGANICS, IRON CONCRETION @ 31.5'
35					
40	SS	42	10	2	MEDIUM TO COARSE GRAINED SAND & GRAVEL-IRON CONCRETION @ 48.8'
	SS	50	12	2	SECOND SAMPLE-.4' AS ABOVE-.8' DENSE ORANGE TO GRAY CLAY WITH SOME ROCK FRAGMENTS
	SS	42	10	2	EXTRA SAMPLE-CLAY @ 39'-SAMPLE PREDOMINATELY SAND WITH SOME CLAY LENSES, WILL GO TO NEXT INTERVAL-NO SAMPLE COLLECTED 40-42
45	SS	100	18	0.0	46'-46.8' ORANGE TO BROWN, DENSE PLASTIC CLAY ← JACKSON CLAY 46.8' BECOMES GRAY WITH MAROON STREAKS, SOME ORGANICS, TRACE OF SAND
50					BORING TERMINATED @ 48.0'

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B-38
COLLIERVILLE SITE
COLLIERVILLE TN.

DWG DATE: 02/19/91 | DWG NAME: CARWELL2

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
SURFACE					GRASSY
5	SS	75	11	3.2	MOTTLED LIGHT BROWN & GRAY SILT, SOME CLAY, POSSIBLE FILL FROM PREVIOUS INVESTIGATION, SOME RUST STAINS, TRACE OF SAND
10					
15	SS	100	18	4.8	MOTTLED BROWN & GRAY SILT, ORGANIC STREAKS @ 14.5', SOME SMALL RUST STAINS, TRACE OF SAND
20					
25	SS	75	23	1.2	22'-22.9' BROWN TO RUST SANDY CLAY & SILT, IRON STAINS-SOME CONCRETIONS, ORGANICS @ 22.6',@ 23' BECOMES MOTTLED LIGHT GRAY & BROWN SILTY SAND, LARGE RUST STAIN @ 23.6'
30					SAMPLE B39-4 SPLIT WITH BLACK & VEATCH
	SS	75	70	22	MEDIUM TO COARSE GRAINED SAND-LIGHT GRAY WITH RUST ORANGE STREAKS, SOME GRAVEL
35	SS	83	78	22	MEDIUM TO COARSE GRAINED SAND, ROCKS [GRAVEL(PEA SIZE)] ABUNDANT, LIGHT GRAY TO TAN COLOR-SOME RUST COLOR-FROM 33.6'-33.9' BANDS OF RUST COLOR-SAME GRAIN SIZE
40	SS	96	77	140	TAN TO BROWN, MEDIUM TO COARSE GRAINED SAND & GRAVEL, TRACE OF SILT, GRAVEL ZONE @ 39'-39.2' OTHERWISE POORLY SORTED THROUGHOUT
45					LIGHT TAN AND BROWN FINE TO MEDIUM GRAINED SAND-47.4' LIGHT BROWN CLAY SEAMS APPROX. .5' IN THICKNESS SOME PEA GRAVEL SCATTERED THROUGHOUT LAST .5'
	SS	88	60	20	49'-49.4' SAME AS ABOVE, 49.4'-49.7' DARK BROWN COARSE GRAINED SAND & GRAVEL-SOME CLAY STRINGERS-IRON NODULES,49.7'-51.0'
50	SS	88	9	20	BROWN & GRAY MOTTLED CLAY WITH MAROON STREAKS-SOME ORGANICS, NO SAMPLES FOR ANALYSIS; BORING TERMINATED @ 51.0' ◁— JACKSON CLAY

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B-39
COLLIERVILLE SITE
COLLIERVILLE TN.

DWG DATE: 02/19/91 | DWG NAME: CARWELL3

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
SURFACE					SPARSE GRASS - DIRT
5					
	SS	75	18	42	MOTTLED LIGHT BROWN & GRAY SANDY SILT-SOME CLAY-NUMEROUS RUST ZONES THAT APPEAR TO BE SANDY, SOME ORGANIC SPECKS SCATTERED THROUGHOUT UPPER .3' AND LOWER .5'
10					
15	SS	92	39	30	MOTTLED LIGHT BROWN & GRAY SANDY SILT, OCCASIONAL RED SPOTS THROUGHOUT, EXTREMELY DENSE 14'-15'-PREDOMINATLY SANDY CLAY
	SS	75	55	30	16.5'-17.5' LIGHT GRAY WITH ABUNDANT RED SPECKS, SILTY SAND @ 17.5' BECOMES ORANGE & LIGHT GRAY MED SAND, WITH SOME IRON (RUST) STREAKS
20					
	SS	79	52	60	22'-22.9' FINE TO MEDIUM GRAINED, TANISH PINK MODERATELY SORTED SAND 22.9'-23.5' SAND BECOMES MORE RUST COLORED
25					
30					
	SS	88	58	2	30'-30.5' TAN & PINK FINE GRAINED SAND, SOME ORGANIC SPOTS @ 30.2' 30.5' BECOMES MOTTLED ORANGE & LIGHT GRAY COARSE GRAINED SAND & GRAVEL
35					
40	SS	96	55	0.6	SAMPLE B40-5 SPLIT WITH BLACK & VEATCH 38'-38.5' LIGHT GRAY COARSE GRAINED SAND AND GRAVEL @ 38.5' BECOMES DARK ORANGE TO BROWN COARSE GRAINED SAND & GRAVEL GRADES TO A LIGHT ORANGE TAN WITH DEPTH 40'-40.4' COARSE GRAINED SAND & GRAVEL ORANGE TO BROWN,
	SS	75	100	1.2	40.4'-40.6' BECOMES SAND AND GRAVEL DARK BROWN-SOME CLAY, 40.6'-42' LIGHT ORANGE TO TAN MEDIUM TO COARSE GRAINED SAND WITH SOME GRAVEL, POORLY GRADED
45					FIRST SAMPLE 8" RECOVERED-DROVE SECOND SAMPLE 100% RECOVERY 46'-46.5' BROWNISH ORANGE COARSE GRAINED SAND & GRAVEL-WET
	SS	100	8	1.2	46.5'-48' MOTTLED ORANGEISH BROWN AND GRAY BLACK CLAY- JACKSON CLAY APPEARS TO BE SOME SAND PRESENT IN THE CLAY, IRON CONCRETION @ 47'
50					BORING TERMINATED @ 48.0'

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B-40
COLLIERVILLE SITE
COLLIERVILLE, TN.

DWG DATE: 02/19/91 | DWG NAME: CARWELL4

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
5	SS	100	21	0.0	BROWN SANDY CLAY
10	SS	83	14	0.0	TAN SANDY CLAY TO 9.5' GRADING TO BROWN CLAYEY SAND.
15	SS	100	75	0.0	WHITE FINE GRAINED SAND W/ ROCK FRAGMENTS.
20	SS	100	62	0.0	SAME AS ABOVE
25	SS	66	36	0.0	SAME, GRADING TO LIGHT ORANGE-PINK
30	SS	75	66	0.0	BROWN COARSE SAND W/ GRAVEL, MOIST
35	SS	90	8	0.0	SAME TO 33.5', BELOW 33.5' IS MOTTLED BROWN-GRAY SILTY CLAY W/ MAROON STREAKS ← JACKSON CLAY
40					BORING TERMINATED @ 35.0' ON 7/9/90. HOLE BACKFILLED W/ EPA APPROVED CEMENT, BENTONITE GROUT TO SURFACE.
45					
50					
55					

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B-41

COLLIERVILLE SITE
COLLIERVILLE, TN.

DWG DATE: 02/19/91 | DWG NAME: CARRB1

DEPTH (FT.)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
5	SS	83	14	1.5	BROWN CLAYEY, SANDY SILT W/ A TRACE OF BLACK ORGANIC INCLUSIONS.
10	SS	87	27	0.2	BROWN-GRAY MOTTLED CLAYEY SILT W/ BLACK ORGANIC INCLUSIONS.
15	SS	90	19	0.2	BROWN-GRAY MOTTLED SANDY SILT
20	SS	90	36	0.2	BROWN-GRAY. MOTTLED SILTY SAND W/ ABUNDANT DARK IRON STAINING.
25	SS	90	56	0.2	BROWN-ORANGE CLAYEY SAND W/ GRAVEL & ABUNDANT DARK IRON & ORGANIC STAINING.
30	SS	90	53	0.2	BROWN-ORANGE MEDIUM GRAINED SAND W/ SOME PEBBLES TO 29.0', GRADING TO DARK BROWN COARSE GRAINED SAND W/ GRAVEL.
35	SS	100	100	0.2	BROWN TO DARK BROWN MEDIUM GRAINED SAND W/ GRAVEL.
40	SS	83	57	0.2	BROWN-ORANGE MEDIUM TO COARSE GRAINED SAND W/ ROCK FRAGMENTS.
45	SS	100	85	0.2	BROWN-ORANGE COARSE GRAINED SAND W/ GRAVEL & IRON STAINING.
50	SS	100	129	0.2	BROWN COARSE GRAINED SAND W/ GRAVEL & SOME SILT.
55	SS	100	9	0.2	BROWN-GRAY MOTTLED CLAY W/ MAROON STREAKS & A TRACE OF SAND. ← JACKSON CLAY

BORING TERMINATED @ 55.0' ON 7/10/90
HOLE BACKFILLED W/ EPA APPROVED
CEMENT, BENTONITE GROUT TO SURFACE.

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B-42

COLLIERVILLE SITE
COLLIERVILLE, TN.

DWG DATE: 02/19/91 | DWG NAME: CARRB2

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
5	SS	66	11	4-7	BROWN-YELLOW COARSE GRAINED SAND, W/ HYDROCARBON ODOR TO 3.7', BELOW THIS IS GRAY SILT.
10	SS	66	12	2.2	BROWN-GRAY MOTTLED CLAYEY SILT W/ DARK ORGANIC & IRON STAINS.
15	SS	75	15	1.0	BROWN-GRAY MOTTLED CLAYEY SILT
20	SS	83	16	1.2	SAME, W/ TRACE OF FINE GRAINED SAND & SOME°IRON STAINS.
25	SS	100	48	0.7	BROWN-ORANGE FINE TO MEDIUM GRAINED SAND W/ DARK BROWN MOTTLING BELOW 0.33' OF SANDY CLAY.
30	SS	90	91	3.2	BROWN-ORANGE/GRAY FINE TO MEDIUM GRAINED SAND W/ GRAVEL, A TRACE OF CLAY & DARK ORGANIC STAINING.
35	SS	83	100	2.0	BROWN TO LIGHT GRAY/WHITE FINE TO COARSE GRAINED SAND W/ GRAVEL.
40	SS	100	27	12	WHITE TO ORANGE MEDIUM TO COARSE GRAINED SAND TO 39.6', GRADING TO ORANGE FINE GRAINED SAND W/ BROWN LAMINAE & FINE BLACK INCLUSIONS THROUGHOUT.
45	SS	90	11	1.2	BROWN-GRAY MEDIUM TO COARSE GRAINED SAND W/ DARK MOTTLING TO 43.6', BECOMING BROWN TO GRAY MOTTLED CLAY. ← JACKSON CLAY
50					
55					BORING TERMINATED @ 45.0' ON 7/11/90 HOLE BACKFILLED W/ EPA APPROVED CEMENT, BENTONITE GROUT TO SURFACE.

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B-43

COLLIERVILLE SITE
COLLIERVILLE, TN.

DWG DATE: 02/19/91 | DWG NAME: CARRB3

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
5	SS	87	9	12	BROWN SANDY CLAY W/ GRAVEL TO 3.5' GRADING TO GRAY CLAYEY SILT W/ IRON NODULES.
10	SS	87	25	1.2	BROWN MOTTLED SILT W/ A TRACE OF CLAY & FINE GRAINED SAND.
15	SS	90	23	0.8	BROWN-GRAY CLAYEY SILT TO 13.5', GRADING TO BROWN-GRAY MOTTLED SILTY FINE GRAINED SAND.
20	SS	100	13	0.4	SAME, GRADING TO GRAY FINE GRAINED SILTY SAND BELOW 19.0' W/ DARK CARBON STREAKS & IRON STAINS.
25	SS	100	20	0.4	BROWN-GRAY FINE GRAINED SILTY SAND TO 23.4', GRADING TO GRAY-BROWN COARSE SAND W/ GRAVEL.
30	SS	83	53	0.8	BROWN MEDIUM TO COARSE GRAINED SILTY SAND W/ GRAVEL & SOME CLAY.
35	SS	90	29	1.0	BROWN/ORANGE-GRAY MEDIUM TO COARSE GRAINED SAND W/ ABUNDANT GRAVEL.
40	SS	95	16	1.0	BROWN-ORANGE MEDIUM TO COARSE GRAINED SAND W/ ABUNDANT GRAVEL TO 38.2', BECOMING BROWN-ORANGE SILTY CLAY W/ DARK BROWN-BLACK ORGANIC STAINS. ← JACKSON CLAY
45					BORING TERMINATED @ 40.0' ON 7/12/90 HOLE BACKFILLED W/ EPA APPROVED CEMENT, BENTONITE GROUT TO SURFACE.
50					
55					

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B-44

COLLIERVILLE SITE
COLLIERVILLE, TN.

DWG DATE: 02/19/91 | DWG NAME: CARRB4

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
5	SS	87	16	0.2	BROWN-GRAY MOTTLED SILT, ABUNDANT IRON STAINS & ORGANIC SPECKS.
10	SS	80	18	0.2	BROWN/ORANGE-GRAY MOTTLED SILTY CLAY W/ ABUNDANT IRON STAINS.
15	SS	90	17	0.2	BROWN-ORANGE CLAYEY SILT W/ ABUNDANT IRON STAINING.
20	SS	90	21	0.2	BROWN MEDIUM GRAINED CLAYEY SAND W/ PEA GRAVEL.
25	SS	71	120	0.2	BROWN TO WHITE, FINE TO MEDIUM GRAINED SAND TO 23.5', BECOMING BROWN TO WHITE COARSE GRAINED SAND & GRAVEL.
30	SS	100	8	0.2	BROWN MEDIUM TO COARSE GRAINED SAND TO 28.5', BECOMING AN ORANGE-BROWN DENSE CLAY. ← JACKSON CLAY
35					BORING TERMINATED @ 30.0' ON 7/16/90 HOLE BACKFILLED W/ EPA APPROVED CEMENT, BENTONITE GROUT TO SURFACE.
40					
45					
50					
55					

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B-45

COLLIERVILLE SITE
COLLIERVILLE, TN.

DWG DATE: 02/19/91 | DWG NAME: CARRB5

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
5	SS	87	16	2.2	BROWN-GRAY MOTTLED SILT W/ ABUNDANT IRON STAINS & ORGANIC INCLUSIONS.
10	SS	80	18	6.0	BROWN-ORANGE SILTY CLAY W/ ABUNDANT IRON STAINS.
15	SS	100	14	3.0	BROWN TO GRAY MOTTLED CLAYEY SILT W/ ABUNDANT IRON STAINS.
20	SS	100	22	17.5	BROWN SANDY CLAY TO 19.5', GRADING TO BROWN/ORANGE MEDIUM TO COARSE SAND W/ ROCK FRAGMENTS.
25	SS	75	69	2.8	BROWN/ORANGE FINE TO COARSE GRAINED SAND W/ A TRACE OF SILT, MOIST.
30	SS	100	5	0.2	BROWN MEDIUM GRAINED SAND W/ A TRACE OF CLAY TO 28.5', BECOMING A BROWN-ORANGE SANDY CLAY W/ GRAY SEAMS & SILT. ← JACKSON CLAY
35					BORING TERMINATED @ 30.0' ON 7/16/90 HOLE BACKFILLED W/ EPA APPROVED CEMENT, BENTONITE GROUT TO SURFACE.
40					
45					
50					
55					

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5724 SUMMERTREES DR. MEMPHIS, TN. 38134 (901)372-7962

B-46

COLLIERVILLE SITE
COLLIERVILLE, TN.

DWG DATE: 02/19/91 | DWG NAME: CARRB6

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
5	SS	83	17	0.2	BROWN-GRAY MOTTLED SILT W/ A TRACE OF CLAY & ABUNDANT IRON STAINS.
10	SS	100	28	0.2	BROWN-GRAY MOTTLED SILT W/ A TRACE OF CLAY & BLACK ORGANIC STAINS.
15	SS	95	21	0.2	BROWN-GRAY MOTTLED SILT W/ A TRACE OF CLAY.
20	SS	100	26	0.2	BROWN/ORANGE-GRAY MOTTLED CLAYEY SILT W/ DARK BROWN ORGANIC STAINING TO 19.6', BECOMING BROWN FINE TO MEDIUM GRAINED CLAYEY SAND.
25	SS	100	16	1.0	BROWN/ORANGE-GRAY MOTTLED CLAYEY SILT W/ FINE GRAINED SAND TO 24.2', GRADING TO A GRAY CLAYEY SAND W/ GRAVEL.
30	SS	100	71	5.4	GRAY-ORANGE/RED MEDIUM TO COARSE GRAINED SAND W/ GRAVEL.
35	SS	83	55	100	GRAY-BROWN/ORANGE COARSE GRAINED SAND W/ BLACK STAINS & GRAVEL.
40	SS	100	95	7.0	ORANGE-YELLOW MEDIUM TO COARSE GRAINED SAND, DARK IRON STAINING, DAMP.
45	SS	90	99	54	ORANGE-YELLOW COARSE GRAINED SAND W/ GRAVEL & A TRACE OF IRON STAINS & CLAY.
50	SS	83	19	13	BROWN-GRAY MOTTLED FINE GRAINED SANDY CLAY TO 48.4', GRADING TO ORANGE-YELLOW FINE TO MEDIUM GRAINED SAND.
55	SS	100	21	0.2	BROWN FINE GRAINED SANDY CLAY, W/ MAROON SWIRLS TO 53.7', BECOMING MOTTLED GRAY & ORANGE BROWN CLAY W/ A TRACE OF SAND & SILT. ← JACKSON CLAY

BORING TERMINATED @ 55.0' ON 7/17/90
HOLE BACKFILLED W/ EPA APPROVED
CEMENT, BENTONITE GROUT TO SURFACE.

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B-47

COLLIERVILLE SITE
COLLIERVILLE, TN.

DWG DATE: 02/19/91 | DWG NAME: CARRB7

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
5	SS	100	17	0.2	BROWN-GRAY MOTTLED CLAYEY SILT.
10	SS	90	23	0.4	BROWN-GRAY MOTTLED CLAYEY SILT W/ IRON STAINS & ORGANICS.
15	SS	100	16	0.2	SAME TO 14.5', BECOMING GRAY SILT W/ A TRACE OF SAND.
20	SS	90	25	2.0	BROWN-ORANGE CLAYEY SAND TO 19.2', BECOMING SANDY CLAY W/ BLACK INCLUSIONS & SOME GRAVEL.
25	SS	75	87	2.2	BROWN-ORANGE MEDIUM TO COARSE SAND W/ GRAVEL & ABUNDANT IRON STAINS.
30	SS	90	5	2.0	THIN BAND OF BROWN COARSE GRAINED SAND W/ SILT GRADING TO A THIN BED OF BROWN SANDY CLAY OVERLAYING A BROWN CLAYEY SILT W/ FINE SAND & INTERMIXED BLACK ORGANIC LAYERS. ← JACKSON CLAY
35	SS	95	11	0.2	BROWN-GRAY MOTTLED CLAY W/ SILT & SAND.
40	SS	83	11	0.2	SAME AS ABOVE
45					BORIN TERMINATED @ 40.0' ON 7/17/90 HOLE BACKFILLED W/ EPA APPROVED CEMENT, BENTONITE GROUT TO SURFACE.
50					
55					

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B-48

COLLIERVILLE SITE
COLLIERVILLE, TN.

DWG DATE: 02/19/91 | DWG NAME: CARRB8

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
	SS	100	19	? 180	BROWN-GRAY MOTTLED CLAYEY SILT W/ IRON STAINS.
5	SS	100	19	0.2	SAME, BECOMING BROWN W/ ORGANIC STAINS.
10	SS	100	21	0.2	BROWN-GRAY MOTTLED CLAYEY SILT W/ ORGANIC STAINS.
15	SS	100	38	0.2	BROWN-GRAY MOTTLED CLAYEY SILT W/ ORGANIC STAINS.
20	SS	100	106	0.4	BROWN-BLACK/RED/GRAY MOTTLED CLAYEY SAND.
25	SS	100	102	1.2	BROWN MOTTLED SILTY SAND W/ ORGANIC STAINS & GRAVEL.
30	SS	100	31	2.4	BROWN SILTY MEDIUM GRAINED SAND W/ GRAVEL & BLACK ORGANIC STAINING.
35	SS	100	13	4.0	BROWN-GRAY/YELLOW SILTY SAND W/ ORGANIC STAINS.
40	SS	95	33	14.8	BROWN SILTY CLAY TO 43.9', GRADING TO BROWN-GRAY MOTTLED SILTY SAND.
45	SS	100	49	13.0	BROWN SILTY CLAY W/ MAROON STREAKS TO 49.1', OVERLYING A BROWN SILTY MEDIUM GRAINED SAND W/ BLACK MOTTLING. ← JACKSON CLAY
50					
55					

BORING TERMINATED @ 50.0' ON 7/18/90
HOLE BACKFILLED W/ EPA APPROVED
CEMENT, BENTONITE GROUT TO SURFACE.

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B-49

COLLIERVILLE SITE
COLLIERVILLE, TN.

DWG DATE: 02/19/91 | DWG NAME: CARRB9

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
	SS	100	26	0.0	MOTTLED BROWN SILTY CLAY
10	SS	75	28	0.0	MOTTLED BROWN SILTY CLAY
	SS	92	11	0.0	VERY FINE GRAINED SANDY CLAY
20	SS	83	30	0.0	BROWN CLAYEY SAND. MORE CLAY IN LAST 0.5'. SOME IRON STAIN
	SS	100	40	0.0	BROWN-RED MEDIUM GRAINED SAND. SPARSE ROCK FRAGMENTS. CLAY SEAMS AND TRACES OF CLAY
30	SS	87	69	0.0	RUST COLORED MEDIUM GRAINED SAND. LAST 2" WELL SORTED MEDIUM GRAINED TAN SAND
	SS	83	71	0.0	MOIST WHITE MOTTLED MEDIUM GRAINED SAND GRADING TO RUST COLORED FINE GRAINED SAND
40	SS	58	79	0.0	RED-BROWN FINE TO MEDIUM GRAINED SANDS, WET
	SS	79	123	0.0	SAME AS ABOVE
50	SS	83	67	0.0	SAME AS ABOVE

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B-51
SOIL BORING
COLLIERVILLE SITE
COLLIERVILLE, TN.

DATE: 6/20/91 | DWG NAME: 9CARRB1

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
	SS	100	26	0.0	SAME AS ABOVE
60					
					HYDROPUNCH AT 59.0' BORING TERMINATED AT 59.0' ON 3/20/91. HOLE BACKFILLED WITH CEMENT/BENTONITE GROUT.

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B-51
SOIL BORING
COLLIERVILLE SITE
COLLIERVILLE, TN.

DATE: 6/20/91 | DWG NAME: 9CARRB1B

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
	SS	100	13	0.0	MOTTLED BROWN SILTY CLAY
10	SS	92	9	0.0	MOTTLED BROWN SILTY CLAY
	SS	100	14	0.0	BROWN MOTTLED SILTY SANDY CLAY
20	SS	66	34	0.0	GRAY CLAYEY SAND; VERY FINE, WELL SORTED ALTERNATING WITH SANDY CLAY
	SS	83	42	0.0	MEDIUM GRAINED BROWN/ORANGE SAND. IRON STAINS AND MOIST
30	SS	75	71	0.0	BROWN/ORANGE MEDIUM TO COARSE GRAINED SAND. TRACE ROCK FRAGMENTS, VERY MOIST
	SS	66	66	0.0	LIGHT BROWN/ORANGE MEDIUM GRINED SAND, MOIST
40	SS	92	86	0.0	BROWN FINE TO MEDIUM GRAINED SAND. TRACE OF ROCK FRAGMENTS
	SS	79	42	0.0	LIGHT BROWN FINE GRAINED SAND
50	SS	58	56	0.0	LIGHT BROWN FINE TO MEDIUM GRAINED SAND; BLACK ORGANIC LAMINATIONS IN LAST 0.3'

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B-53
SOIL BORING
COLLIERVILLE SITE
COLLIERVILLE, TN.

DATE: 6/20/91 | DWG NAME: 9CARRB2

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
	SS	100	26	0.0	WET MEDIUM GRAINED SAND. ORANGE/BROWN
60					
					HYDROPUNCH AT 58.0' BORING TERMINATED AT 58.0' ON 3/21/91. HOLE BACKFILLED WITH CEMENT/BENTONITE GROUT.

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B-53
SOIL BORING
COLLIERVILLE SITE
COLLIERVILLE, TN.

DATE: 6/20/91 | DWG NAME: 9CARRB2B

Depth (Feet)	Sample Location	% Recovery	Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*	WELL CONSTRUCTION DETAILS
					Top of Casing Elevation=340.90 feet (msl) Ground Surface Elevation=340.10 feet (msl)	
0						Cement Bentonite Grout
10						
20						3/4-inch Galvanized Steel Casing 8-inch PVC Protective Casing
30					Field logging started at 30 feet below ground surface	JACKSON CLAY
		100	7		Light gray CLAY with trace of sand and gravel, saturated becomes mottled with brown	
		100	9		becomes orange-brown with black streaks	34.0 feet
		100	16			
		100	15		becomes dark gray	
40						41 feet
		78	22		becomes intermixed with mica flakes and very fine sand	42 feet 43 feet 44 feet 45 feet
		100	21			
		100	25		becomes slightly silty	47 feet
		100	30			2 foot Ceramic Piezometer Point
50					Boring Terminated at 50.0 feet on 4-6-88	50.0 feet

*Field-Logged by ENSAFE

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

PIEZOMETER
PZ-1

June, 1988

Depth (Feet)	Sample Location	% Recovery	Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*	WELL CONSTRUCTION DETAILS
					Top of Casing Elevation=340.80 feet (msl) Ground Surface Elevation=340.07 feet (msl)	
0					Soil descriptions from 30 feet to 50 feet derived from PZ-1	Cement Bentonite Grout
10						8-inch PVC Protective Casing
20						3/4-inch Galvanized Steel Casing
30					Field logging started at 30 feet below ground surface	JACKSON CLAY
		100	7		Light gray CLAY with trace of sand and gravel, saturated becomes mottled with brown	
		100	9		becomes orange-brown with black streaks	
		100	16			
		100	15		becomes dark gray	
40		78	22		becomes intermixed with mica flakes and very fine sand	
		100	21			
		100	25		becomes slightly silty	
50		100	30			

*Field-Logged by ENSAFE

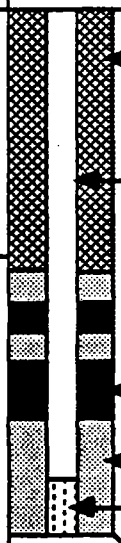
CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

PIEZOMETER
PZ-2

June, 1988

Depth (Feet)	Sample Location	% Recovery	Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
50					
		100	52		Dark gray CLAY with little sand
		94	29		Dark gray SANDY CLAY, sand is fine grained
60					
		100	34		becomes very moist
		100	34		becomes more clayey and dense
70					Boring Terminated at 70 feet on 5-3-88
80					
90					
100					

WELL CONSTRUCTION DETAILS



*Field Logged by ENSAFE

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

PIEZOMETER
PZ-2

June, 1988

Depth (Feet)	Sample Location	% Recovery	Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*	WELL CONSTRUCTION DETAILS
					Top of casing elevation = 343.62 feet (msl) Ground surface elevation = 341.11 feet (msl)	6" PVC Outer Casing
0					Asphalt and dark brown SAND and GRAVEL	
					Mottled tan and light gray CLAYEY SILT; moist; small red - brown blebs; gray bedding fractures	
					Light brown SILTY CLAY with blebs; moist; soft	Cement/Sand/ Bentonite Grout
					Light gray and mottled light gray and brown CLAYEY SILT	
10					Mottled dark and light brown SILTY CLAY	
					Brown CLAY, trace silt; moist	
					Brown CLAYEY SILT; moist some orange staining; many dark brown blebs	
					Mottled brown and tan SILTY CLAY; orange - brown oxidation along apparent vertical fracture zone; moist; blebs	
					Light gray CLAYEY SILT; stained dark brown	
20					Light gray SANDY CLAY; moist; brown staining	2" I.D. Galvanized Steel Casing
					Gray SILTY SAND trace clay; moist becomes stained brown with coarser sand and cherty pea gravel becomes less well graded; some orange staining thin layer of black staining at 28.5 feet becomes very moist yellow - orange and dark brown staining at 34.5 feet	
30						
					Orange to light gray, medium grained SAND, trace gravel and silt	
40						JACKSON CLA
					Light brown to light gray CLAY with interbedded silts and thin light gray sandy silt laminae	
50						Log continued on page 2

*Based on information provided by R.F. Weston, Inc., and comparison with adjacent borings.

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

MONITOR WELL
MW-1, page 1
June1988

Depth (Feet)	Sample Location	% Recovery	SPT Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*	WELL CONSTRUCTION DETAILS
50					Layered tan, light brown, black, and red SANDY CLAY, increasing fine sand with depth	
					Light tan CLAY; occasional thin gray silty fine sand laminations	
					Orange brown SANDY CLAY with light gray sandy laminations	Cement/Sand/ Bentonite Grout
60					alternating 2 to 5 inchbeds of light gray to light brown CLAY and orange brown to light gray SILTY FINE SAND	
					Light tan CLAY (heavy), trace sand; orange brown silty clay laminations	
					Intergrading gray/tan SANDY CLAY and CLAY	69'
70					Brown, fine SILTY SAND; moist; some black staining	MEMPHIS SANDS Bentonite Seal
						72'
					becomes orange to reddish-brown with occasional clay seams and layers of hard ironstone	2" I.D. Galvanized Steel Inner Casing
80					Orange-brown, fine to medium SAND with occasional thin gray clay laminae; ironstone pebbles	
					becomes silty	
					becomes very light brown; poorly graded	
90						15' of 0.10 slot, 2" I.D. Stainless Steel Screen
					becomes orange grading to pink	
					becomes reddish-pink grading to tan/light brown	Gravel Filter Pack
100						
					Boring terminated at 102.3 feet	102.3'

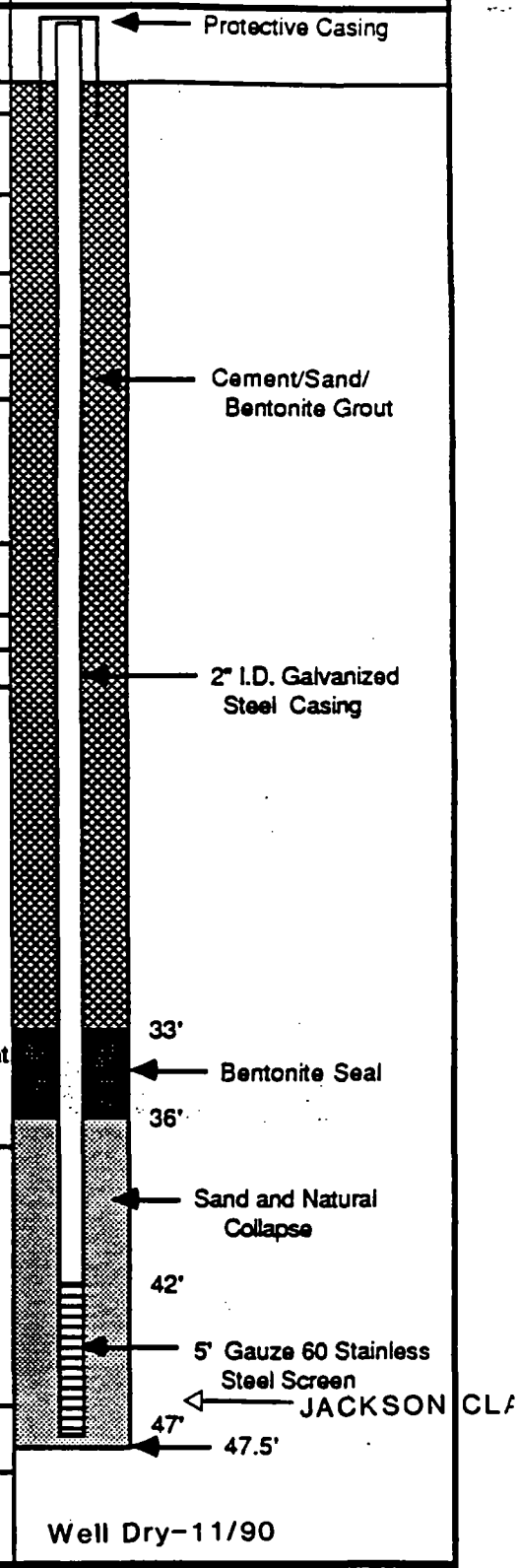
*Based on information provided by R.F. Weston, Inc., and comparison with adjacent borings.

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

MONITOR WELL
MW-1, page 2
June 1988

Depth (Feet)	Sample Location	% Recovery	SPT Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
					Top of Casing Elevation = 342.31 feet (msl)
					Ground Surface Elevation = 341.03 feet (msl)
0					Asphalt and dark brown SAND and GRAVEL (FILL)
		67	15		Mottled tan and light gray CLAYEY SILT; moist; small reddish brown blebs; gray bedding fractures becomes greenish-gray
		78	9		Light brown SILTY CLAY; moist; soft; dark reddish-brown blebs
		100	22		Light gray and mottled light gray and brown CLAYEY SILT
		94	13		Mottled dark brown and light brown SILTY CLAY
10					Brown CLAY, trace silt; moist
		100	15		Brown CLAYEY SILT; moist
		100	16		becomes stained orange with numerous dark brown blebs
		100	12		Mottled brown and tan SILTY CLAY; orange-brown oxidation along vertical fracture zone; moist; blebs
		100	18		Light gray CLAYEY SILT; stained dark brown
20					Light gray SANDY CLAY; moist; brown staining
		33	15		Gray SILTY SAND, trace clay; moist
		83	36		becomes stained brown with coarser sand and some pea gravel (predominantly chert)
		94	70		becomes less well graded; some orange staining
		100	77		thin layer of black staining at 28.5 feet
30					
		100	74		becomes very moist
		100	68		yellow-orange and dark brown staining at 34.5 feet
		100	49		
		100	50		Orange to light gray, medium-grained SAND, trace gravel and silt; moist
40					
		100	68		
		100	60		becomes very moist
		100	9		Light brown to light gray CLAY with interbedded silts and thin light gray sandy silt laminae; very moist
					Augering terminated at 47.5 feet on 8-13-87.
50					

WELL CONSTRUCTION DETAILS



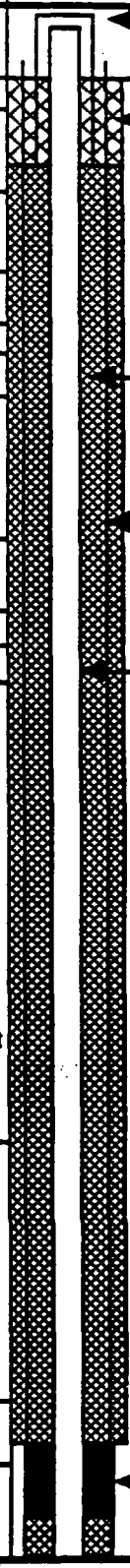
Well Dry-11/90

* Field-logged by Dames & Moore

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

MONITOR WELL
MW-1A
June 1988

Depth (Feet)	Sample Location	% Recovery	SPT Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
					Top of casing elevation = 343.50 feet (msl) Ground surface elevation = 341.11 feet (msl)
0					Asphalt and dark brown SAND and GRAVEL (FILL)
		67	15		Mottled tan and light gray CLAYEY SILT; moist; small reddish brown blebs; gray bedding fractures
		78	9		Light brown SILTY CLAY; moist; soft; dark reddish-brown blebs
		100	22		Light gray and mottled light gray and brown CLAYEY SILT
		94	13		Mottled dark brown and light brown SILTY CLAY
10					Brown CLAY, trace silt; moist
		100	15		Brown CLAYEY SILT; moist
		100	16		some orange staining; dark brown blebs become numerous
		100	12		Mottled brown and tan SILTY CLAY; orange-brown oxidation along vertical fracture zone; moist; blebs
		100	18		Light gray CLAYEY SILT; stained dark brown
20					Light gray SANDY CLAY; moist; brown staining
		33	15		Gray SILTY SAND, trace clay; moist
		83	36		becomes stained brown with coarser sand and some pea gravel (predominantly chert)
		94	70		becomes less well graded; some orange staining
		100	77		thin layer of black staining at 28.5 feet
30					
		100	74		becomes very moist
		100	68		yellow-orange and dark brown staining at 34.5 feet
		100	49		
		100	50		Orange to light gray, medium-grained SAND, trace gravel and silt; moist
40					
		100	68		
		100	60		becomes very moist
		100	9		
					Light brown to light gray CLAY with interbedded silts and thin light gray sandy silt laminae; very moist
50					Augering terminated at 47.5 feeton 8-13-87. 4 inch Galvanized steel outer casing installed to depth of 49 feet.



WELL CONSTRUCTION DETAILS

- Protective Casing
- Concrete
- 3'
- Cement/Sand/ Bentonite Grout
- 4" I.D. Galvanized Steel Outer Casing
- 2" I.D. Galvanized Steel Inner Casing
- JACKSON CLAY
- Bottom of Outer Casing
- 47.5'
- Bentonite Seal

Log continued on page 2

* Field-logged by Dames & Moore

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

MONITOR WELL
MW-1B, page 1
June 1988

Depth (Feet)	Sample Location	% Recovery	SPT Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
50		100	24		Layered tan, light brown, black, and red SANDY CLAY, increasing fine sand with depth
		100	18		Light tan CLAY; moist; occasional thin gray silty fine sand laminations
					Orange brown SANDY CLAY with light gray sandy laminations; moist
		100	13		alternating 2 to 5 inch beds of light gray to light brown CLAY and orange brown to light gray SILTY FINE SAND; wet
60					
		100	11		Light tan CLAY (heavy), trace sand; moist; orange brown silty clay laminations
		100	88+		Intergrading gray/tan SANDY CLAY and CLAY; moist
70					Brown, fine SILTY SAND; moist; some black staining
		78	104		becomes orange to reddish-brown with occasional clay seams and layers of hard ironstone; very moist
		44	99		Orange-brown, fine to medium-grained SAND with occasional thin gray clay laminae; wet; ironstone pebbles
80					
		78	94		becomes silty; 1 inch tan clay ball at 84.5 feet; wet
		72	97		becomes very light brown; poorly graded
90					
		78	95		becomes orange grading to pink
					becomes reddish-pink grading to tan/light brown
100		72	13		4 inch O.D. rotary-wash drilling terminated at 103 feet on 8-14-87. 2 inch galvanized steel casing and stainless steel screen (10-foot) installed to 102.7 feet.

WELL CONSTRUCTION DETAILS

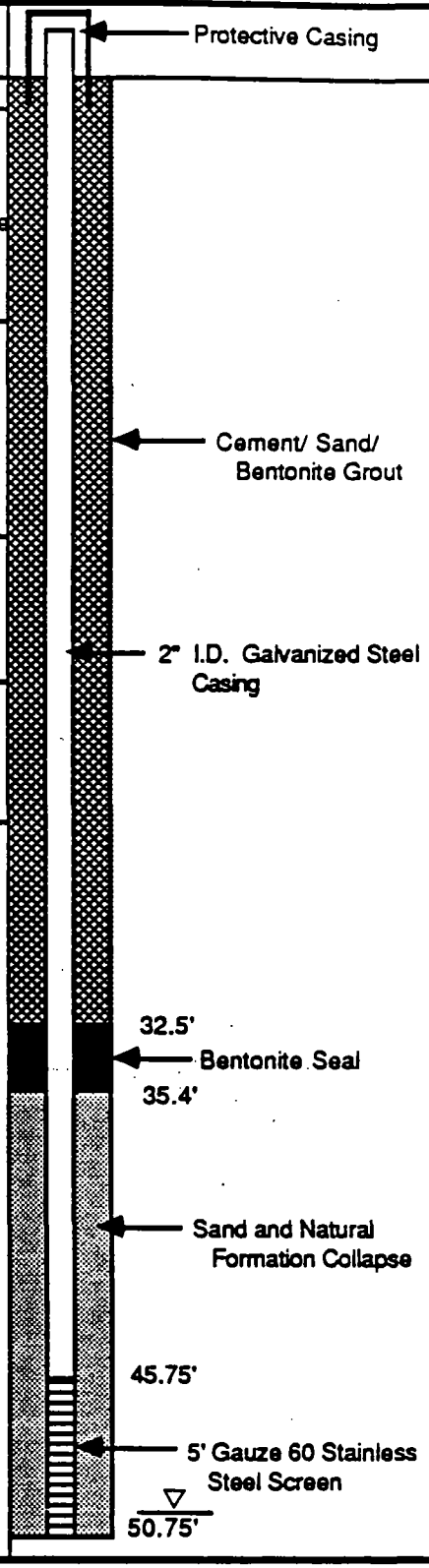
* Field-logged by Dames & Moore

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

MONITOR WELL
MW-1B, page 2
June 1988

Depth (Feet)	Sample Location	% Recovery	Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
					Top of Casing Elevation = 340.05 feet (msl) Ground Surface Elevation =338.11 feet (msl)
0					3 inches of asphalt at surface
		83	12		Brown CLAYEY SILT, trace of sand; damp; thin streaks of orange, light gray, and dark brown blebs
		100	14		becomes light gray to tan; damp; dark brown and orange-brown staining along diagonal fracture zone
		100	16		becomes mottled light brown and gray; moist
		100	14		Light brown to tan SILTY CLAY; moist; rare small dark brown blebs; thin gray streaks of silt
10		100	14		becomes mottled tan, orange-brown, and gray
		100	18		becomes stained dark brown in horizontal fracture at 14 feet; 0.3 feet of clayey sand at 14.4 feet; becomes sandy with depth
		94	22		Intergrading tan to light gray, fine to medium-grained SAND with trace silt and clayey sand; moist; heavy orange to dark brown staining in zones to 18 feet
20		100	30		becomes mottled orange brown and gray
		100	46		Orange-brown to light brown fine to medium-grained SILTY SAND, trace of gravel; very moist
		67	82+		increasing cherty gravel
		100	61		Orange-brown to light brown fine to medium-grained SAND, some silt; trace of gravel; very moist with some gray streaks
30		100	82		
		100	63		becomespoorly graded and medium-grained with dark brown staining from 31.3 feet - 31.5 feet
		100	75		
		100	87		
40		100	47		increasing coarse sand with depth
		100	69		
		100	43		grades to very light brown by 41.8 feet becomes medium to coarse-grained; trace of fine gravel; very moist with dark red staining
		100	84		grades to light gray; fine to medium-grained; moist
50		83	49		very light brown medium to coarse-grained; becomes wet at 49 feet

WELL CONSTRUCTION DETAILS



* Field-logged by Dames & Moore

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

MONITOR WELL
MW-3, page 1
June 1988

Depth (Feet)	Sample Location	% Recovery	Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*	WELL CONSTRUCTION DETAILS
50					become orange-brown and wet at 51.3 feet	Sand
		89	13		Mottled orange-brown and reddish-pink silty clay; moist	51.3' JACKSON CLA
		100	ST		Bottom of shelby tube shows light brown SILTY CLAY with some fine sand	Bentonite 53.3'
					Boring terminated at 55 feet on 9-27-87	55'
60						
70						
80						
90						
100						

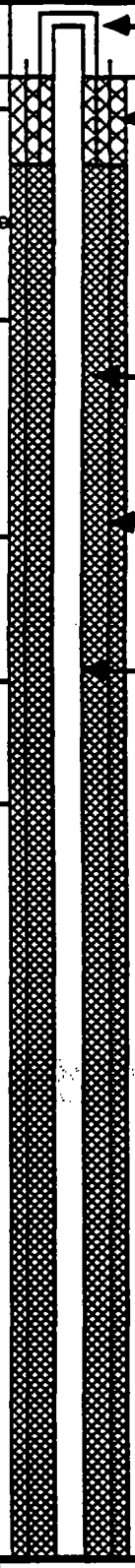
* Field-logged by Dames & Moore

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

MONITOR WELL
MW-3 , page 2
June 1988

Depth (Feet)	Sample Location	% Recovery	Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
					Top of Casing Elevation =339.95 feet (msl) Ground Surface Elevation = 338.08 feet (msl)
0					3 inches of asphalt at surface
		83	12		Brown CLAYEY SILT, trace of sand; damp; thin streaks of orange, light gray, and dark brown blebs
		100	14		becomes light gray to tan; damp; dark brown and orange-brown staining along diagonal fracture zone
		100	16		becomes mottled light brown and gray; moist
		100	14		Light brown to tan SILTY CLAY; moist; rare small dark brown blebs; thin gray streaks of silt
10		100	14		becomes mottled tan, orange-brown, and gray
		100	18		becomes stainedddark brown in horizontal fracture at 14 feet; 0.3 feetof clayey sand at 14.4 feet; becomes sandy with depth
		94	22		Intergrading tan to light gray, fine to medium-grained SAND with trace silt and clayey sand; moist; heavy orange to dark brown staining in zones to 18 feet
20		100	30		becomes mottled orange brown and gray
		100	46		Orange brown to light brown fine to medium-grained SILTY SAND, trace of gravel; very moist
		67	82+		increasing cherty gravel
		100	61		Orange brown to light brown fine to medium-grained SAND, some silt; trace of gravel; very moist with some gray streaks
30		100	82		
		100	63		becomes poorly graded and medium grained with dark brown staining from 31.3 feet to31.5 feet
		100	75		
		100	87		
40		100	47		increasing coarse sand with depth
		100	69		
		100	43		grades to very light brown by 41.8 feet becomes medium to coarse-grained; trace of fine gravel; very moist with dark red staining
		100	84		grades to light gray; fine to medium-grained; moist
50		83	49		very light brown medium to coarse-grained; becomes wet at 49 feet

WELL CONSTRUCTION DETAILS



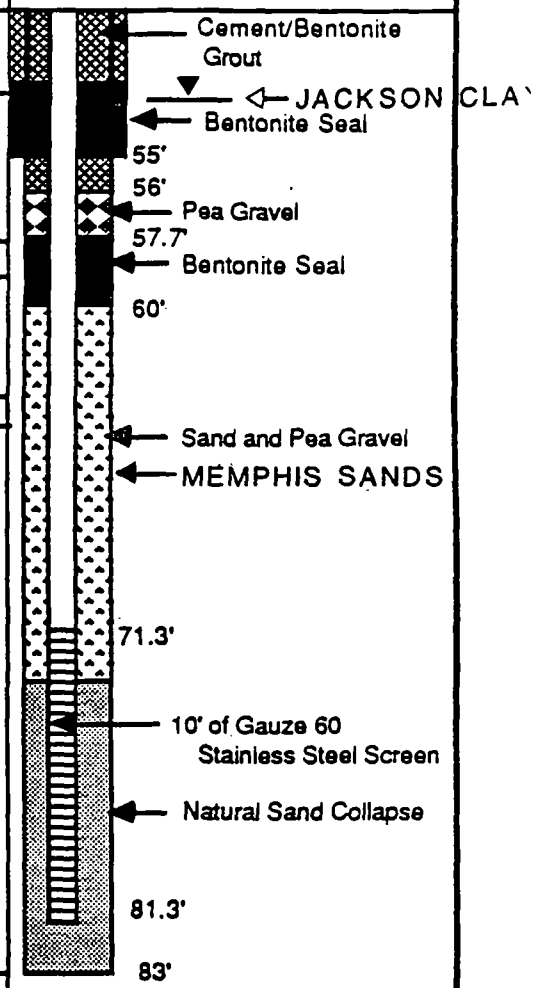
Log continued on page 2.

* Field-logged by Dames & Moore

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

MONITOR WELL
MW-4, page 1
June 1988

Depth (Feet)	Sample Location	% Recovery	Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
50		89	13		Orange-brown medium to coarse grained SAND with trace of gravel at 51.3 feet; wet
		100	ST		Bottom of shelby tube shows light brown SILTYCLAY with some fine sand; moist
		100	33		Tan SANDY CLAY
60					Yellowish to orange brown silty sand; wet with several thin gray to tan clay layers in upper 0.5 foot
		100	44		0.3 feet light brown and pink SANDY CLAY Orange-brown silty fine-grained SAND; wet
70		100	64		layered orange-brown, tan, light gray; wet with occasional thin clay laminations
		67	82		becomes less silty; wet with thin laminations of reddish-brown hard ironstone
80		100	133		becomes light brown to orange-brown, and poorly graded medium graind, wet
90					4 inch Galvanized steel outer casing installed to depth of 55 feet. 4" rotary-wash drilling terminated at 83 feet on 9-11-87.
100					



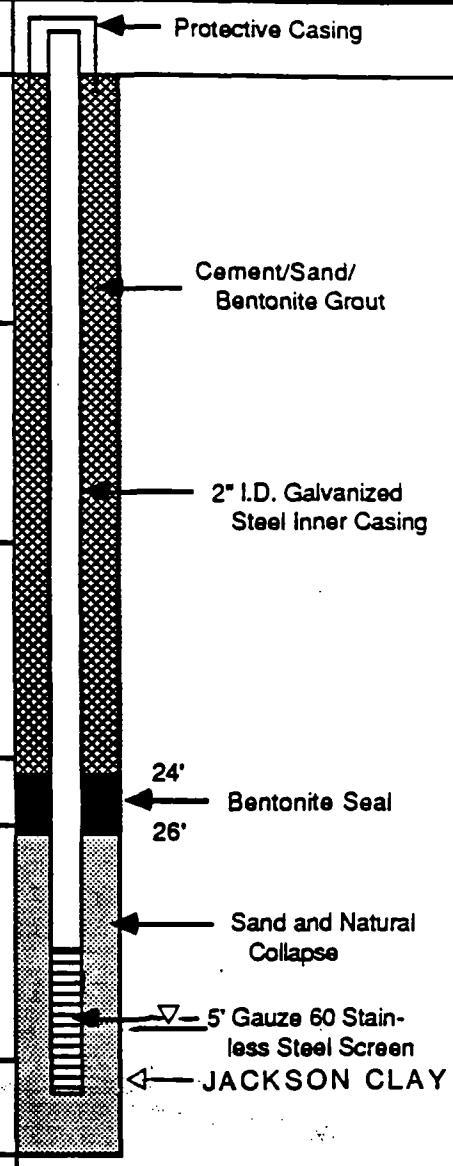
* Field-logged by Dames & Moore

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

MONITOR WELL
MW-4, PG. 2
June 1988

Depth (Feet)	Sample Location	% Recovery	SPT Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
					Top of casing elevation = 343.60 feet (msl) Ground surface elevation = 341.49 feet (msl)
0		78	37		Mottled light brown, gray, and dark brown CLAYEY SILT, trace sand; damp; dark reddish-brown blebs (FILL)
		100	20		becomes layered brown, bluish-gray, olive brown, light gray, and brown; grades to SILTY CLAY, moist
10		100	19		Mottled brown and light gray SILTY CLAY; moist; grades to brown with depth
		100	25		yellowish-brown to dark brown blebs and streaks increasing with depth
		78	20		Mottled brown and light brown CLAYEY SILT; moist to damp; yellow brown and light gray coloring along apparent vertical fracture zone
20		100	29		
		100	21		becomes mottled light brown and light gray with occasional orange blebs; trace sand
		100	23		Brown to orange brown SANDY CLAY; moist; increasing sand with depth
		100	36		Brown, light gray, and orange brown, clayey or silty SAND; trace gravel; moist becomes wet at 28.5 feet chert gravel at 29.8 feet
30		94	80+		becomes well graded; faint chemical odor
		100	7		Brown SILTY CLAY; moist; light gray and pink streaks; occasional, thin, sandy silt zones
		75	ST		
40					Boring terminated at 37 feet on 8-25-87.
					Note: 18 inch split spoon sampler used except where 24 inch Shelby tube sample is indicated by ST
50					

WELL CONSTRUCTION DETAILS

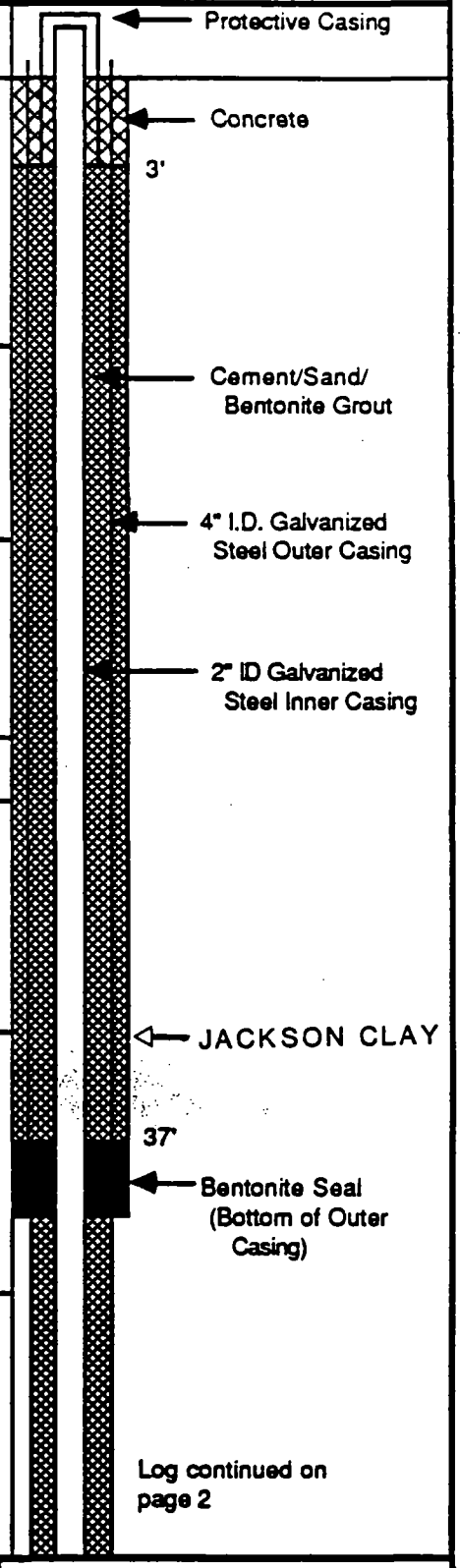


* Field-logged by Dames & Moore

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

MONITOR WELL
MW-5
June 1988

Depth (Feet)	Sample Location	% Recovery	Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
					Top of Casing Elevation = 343.26 feet (msl) Ground Surface Elevation = 341.53 feet (msl)
0		78	37		Mottled light brown, gray, and dark brown CLAYEY SILT, trace sand; damp; dark reddish-brown blebs (FILL)
		100	20		becomes layered brown, bluish-gray, olive brown, light gray and brown; grades to SILTY CLAY
10		100	19		Mottled brown and light gray SILTY CLAY; moist; grades to brown with depth
		100	25		yellowish-brown to dark brown blebs and streaks increasing with depth
		78	20		Mottled brown and light brown CLAYEY SILT; damp; yellow brown and light gray coloring along apparent vertical fracture zone
20		100	29		becomes mottled light brown and light gray with occasional orange blebs; trace sand
		100	23		Brown to orange brown SANDY CLAY; moist; increasing sand with depth
		100	36		Brown, light gray and orange brown, clayey or silty SAND; trace gravel; moist
30		94	80+		becomes wet chert gravel at 29.8 feet
		100	59		well graded; faint chemical odor
		100	7		Brown SILTY CLAY; moist, light gray and pink streaks; occasional thin, sandy silt zones
		75	ST		
40		100	13		alternating gray brown and orange brown; trace of sand; moist
		100	16		Medium gray CLAY, trace of silt; moist; black carbonaceous inclusions at 44.1 feet and 44.5 feet
50		100	13		



Log continued on page 2

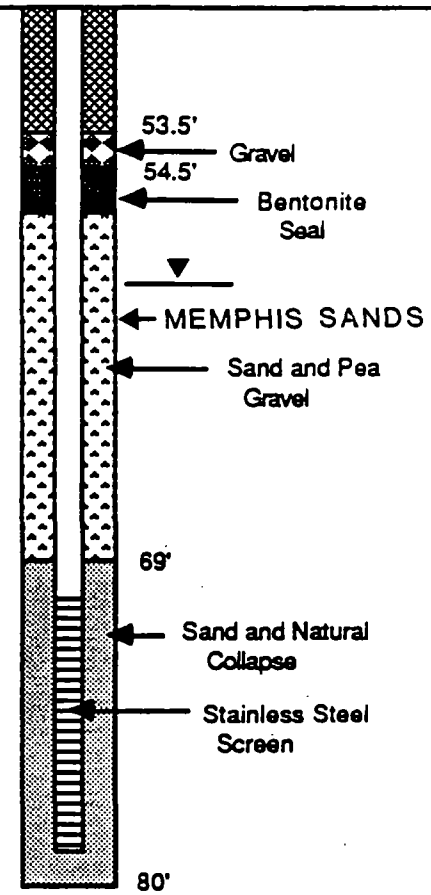
* Field-logged by Dames & Moore

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

MONITOR WELL
MW-6, page 1
June 1988

Depth (Feet)	Sample Location	% Recovery	Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
50					See page 1 of log
		100	17		Medium gray SANDY CLAY to CLAYEY SAND; very moist; sand very fine-grained , increasing sand content with depth
60		100	10		Medium gray fine SAND, some clay; very moist to moist
		100	15		brownish gray with varying amounts of clay; becomes yellowish-brown at 64.6 feet
70		78	88		orange brown to light brown medium to coarse-grained; traces of dark brown staining; wet
		100	83		grades to very light brown
80		83	86		
					Boring terminated at 80 feet on 9-8-87
90					
100					

WELL CONSTRUCTION DETAILS



* Field-logged by Dames & Moore

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

MONITOR WELL
MW-6, page 2
June 1988

Depth (Feet)	Sample Location	% Recovery	Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*	WELL CONSTRUCTION DETAILS
					Top of Casing Elevation = 342.50 feet (msl) Top of Ground Surface Elevation = 341.83 feet (msl)	4" I.D. Guard Pipe
0						2" I.D. Galvanized Casing
	■	100	12		Medium brown to light gray CLAYEY SILT with some fine sand and occasional iron oxide stains	Sand/ Cement/ Bentonite Grout
10	■	89	20		becomes light gray with abundant brown streaks	
	■	94	21		grades to mottled light gray and brown	
20	■	100	23		becomes more clayey; mottled brown and rust-colored	
	■	100	33		Light grayish brown, fine-grained SAND with some silt andgravel; some reddish iron staining; moist	
30	■	83	90+		Orange-brown, well-graded SILTY SAND, trace of gravel; moist; some reddish staining	
	■	100	95+		Light orange-brown to brown well-graded SAND, trace of silt, some fine gravel; moist	37.1'
40	■	100	87			Bentonite Seal 40.1'
	■	100	57			Sand and Natural Collapse
					becomes fine grained and very moist	
50	■	100	54		White well-graded fine-grainedSAND; very moist	49.75' Log continued on page 2

* Field-logged by Dames & Moore

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

MONITOR WELL
MW-9, page 1
June 1988

Depth (Feet)	Sample Location	% Recovery	Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*	WELL CONSTRUCTION DETAILS
50					Light gray and orange-brown very fine SAND; very moist	5' Gauze 60 Stainless Steel Screen
		100	16		Light gray red swirled layers to orange brown CLAY and SILTY CLAY with some very fine sand; moist	55.2' ◁ JACKSON CLAY
					Boring terminated at 55.2 feet on 9-2-87	
60						
70						
80						
90						
100						

* Field-logged by Dames & Moore

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

MONITOR WELL
MW-9, page 2
June 1988

Depth (Feet)	Sample Location	% Recovery	Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*	WELL CONSTRUCTION DETAILS
					Top of Casing Elevation = 343.66 feet (msl) Top of Ground Surface Elevation = 341.64 feet (msl)	8" I.D. PVC Outer Casing
0					Medium brown to light gray CLAYEY SILT with occasional fine sand grains and iron oxide stains	4" I.D. Galvanized Steel Casing Sand/ Cement/ Bentonite Grout
10					brown streaks become abundant	
					appears layered	
20					becomes more clayey; mottled brown and rust colored	
					Light gray-brown, fine-grained SAND with gravel; some reddish iron staining	
30					Orange-brown, well-graded SILTY SAND, trace of gravel; some reddish staining	
					Light orange-brown to brown well-graded SAND, trace of silt, some fine gravel	
40					increasing coarse sand	
50					Orange-brown to white well-graded SAND	

Log continued on page 2

*Based on information provided by R.F. Weston, Inc., and comparison with adjacent borings.

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

MONITOR WELL
MW-10, page 1
June 1988

Depth (Feet)	Sample Location	% Recovery	Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*	WELL CONSTRUCTION DETAILS
50					Light gray and orange-brown very fine SAND	8" Diameter PVC Outer Casing; JACKSON CLAY
					Light gray and red swirled layers to orange-brown SILTY CLAY with some very fine sand	Grout; 4" Diameter Galvanized Steel Casing
60						60'; 62.4'; Bentonite Seal
						68.8'; MEMPHIS SANDS
70					Slightly silty SAND with occasional clayey zones	Gravel Filter Pack
80						15' of 4" Diameter, 0.010 Slot Stainless Steel Screen
						88.25'
90					Boring terminated at 88.25 feet.	
100						

*Based on information provided by R.F. Weston, Inc., and comparison with adjacent borings.

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

MONITOR WELL
MW-10, page 2
June 1988

Depth (Feet)	Sample Location	% Recovery	Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*	WELL CONSTRUCTION DETAILS
					Top of Casing Elevation = 343.83 feet (msl) Top of Ground Surface Elevation = 341.99 feet (msl)	4" I.D. Guard Pipe
0					Brown, CLAYEY SILT; damp; crumbly	
		83	17		Mottled tan and brown SILTY CLAY with inter-grading CLAYEY SILT; moist	Sand/ Cement/ Bentonite Grout
		67	29		Mottled gray and brown CLAYEY SILT; moist; small red and dark brown blebs	
10		94	17			2" I.D. Galvanized Steel Casing
		61	82+		Orange-brown SILTY SAND with some gravel; moist; well graded	
20		83	100		Orange to orange-brown, fine to medium grained SAND, trace silt, some gravel fragments (chert); moist	
		89	84			
30		94	87		some iron staining	33' Bentonite Seal 35'
		94	80			Sand and Natural Collapse
40		100	68		becomes reddish-orange to yellow-orange with random black staining	44'
		89	19		interlayered brown and gray clay	5' Gauze 60 Stainless Steel Screen 49' JACKSON CLA
50					Boring terminated at 50 feet on 8-31-87.	

* Field-logged by ENSAFE

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

MONITOR WELL
MW-11
June 1988

Depth (Feet)	Sample Location	% Recovery	Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*	WELL CONSTRUCTION DETAILS
					Top of Casing Elevation = 344.44feet (msl) Top of Ground Surface Elevation = 342.08 feet (msl)	
0					Brown, CLAYEY SILT; crumbly	6" PVC Outer Casing
					Mottled tan and brown SILTY CLAY with inter-grading CLAYEY SILT	Sand/ Cement/ Bentonite Grout
10					Mottled gray and brown CLAYEY SILT; small red and dark brown blebs	2" Diameter Galvanized Steel Casing
20					Orange-brown SILTY SAND with some gravel; well graded	
					Orange to orange-brown, fine to medium grained SAND, trace silt, some gravel fragments (chert);	
30					some iron staining	
40					becomes reddish-orange to yellow-orange with random black staining	
50					interlayered brown and gray clay	Log continued on page 2

*Based on information provided by R.F. Weston, Inc., and comparison with adjacent borings.

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

MONITOR WELL
MW-12, page 1
June 1988

Depth (Feet)	Sample Location	% Recovery	SPT Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*	WELL CONSTRUCTION DETAILS
50					Orange-brown fine-medium grained SAND	6" PVC Outer Casing
					SANDY CLAY with sandy laminations	JACKSON CLAY 55.5'
						Cement/Sand/ Bentonite Grout
60						2" I.D. Galvanized Steel Inner Casing
					Dense, heavy CLAY with some silt and varying amounts of sand	
					Intergrading gray/tan SANDY CLAY and CLAY	
70						2" I.D. Stainless Steel Casing
					SILTY SAND with occasional clay seams and layers of hard ironstone	MEMPHIS SANDS 77'
80					Fine to medium SAND with occasional thin clay laminae	Bentonite Seal 82'
						Gravel Filter Pack
90					becomes increasingly silty	
					decreasing silt content	15' 0.010 Slot Stainless Steel Screen
100					Boring terminated at 102.8 feet.	102.8'

* Field-logged by Dames & Moore

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

MONITOR WELL
MW-12, page 2
June 1988

Depth (Feet)	Sample Location	% Recovery	Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*	WELL CONSTRUCTION DETAILS
					Top of Casing Elevation = 342.82 feet (msl) Ground Surface Elevation = 340.27 feet (msl)	Protective Casing
0					CLAYEY SILT with occasional zones of clay with little or no silt	Cement/Sand/ Bentonite Grout
10					Silty/sandy CLAY with varying amounts of silt and sand	2" I.D. Galvanized Steel Casing 16.5'
					CLAYEY SILT, less clay than above	Bentonite Seal
20					Clayey/silty SAND with some fine gravel; saturated	20.5' Gravel Filter Pack
					occasional clay-rich zones	15' 0.10 Slot Stainless Steel Screen
30						31.2'
					Boring terminated at 31.2 feet.	BORING TERMINATED ABOVE THE JACKSON CLAY
40						
50						

* Based on information provided by R.F. Weston, Inc.

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

MONITOR WELL
MW-13
June 1988

Depth (Feet)	Sample Location	% Recovery	Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*	WELL CONSTRUCTION DETAILS
					Top of Casing Elevation = 342.91 feet (msl) Ground Surface Elevation = 340.38 feet (msl)	Protective Casing
0					CLAYEY SILT with occasional zones of clay with little or no silt	8" PVC Outer Casing
10					Silty/sandy CLAY with varying amounts of silt and sand	Cement/Sand/ Bentonite Grout
					CLAYEY SILT, less clay than above	
20					Clayey/silty SAND with some fine gravel	2" I.D. Galvanized Steel Casing
					occasional clay-rich zones with much clay	
30					SILTY CLAY with occasional thin sandy zones	JACKSON CLAY
40						
					SANDY CLAY and CLAY	
50						Log continued on page 2

*Based on information provided by R.F. Weston, Inc., and comparison with adjacent borings.

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

MONITOR WELL
MW-14, page 1
June 1988

Depth (Feet)	Sample Location	% Recovery	SPT Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*	WELL CONSTRUCTION DETAILS
50					Silty CLAY	Cement/Sand/ Bentonite Grout
60					Clayey SAND with gravel; occasional clay layers	
70					Heavy, very dense CLAY	2" I.D. Galvanized Steel Inner Casing
80					Sandy CLAY	80' Bentonite Seal 86'
90					SAND with occasional thin clay laminae	Gravel Filter Pack MEMPHIS SANDS 15' 0.010 Slot Stainless Steel Screen
100						
110					Boring terminated at 108 feet.	

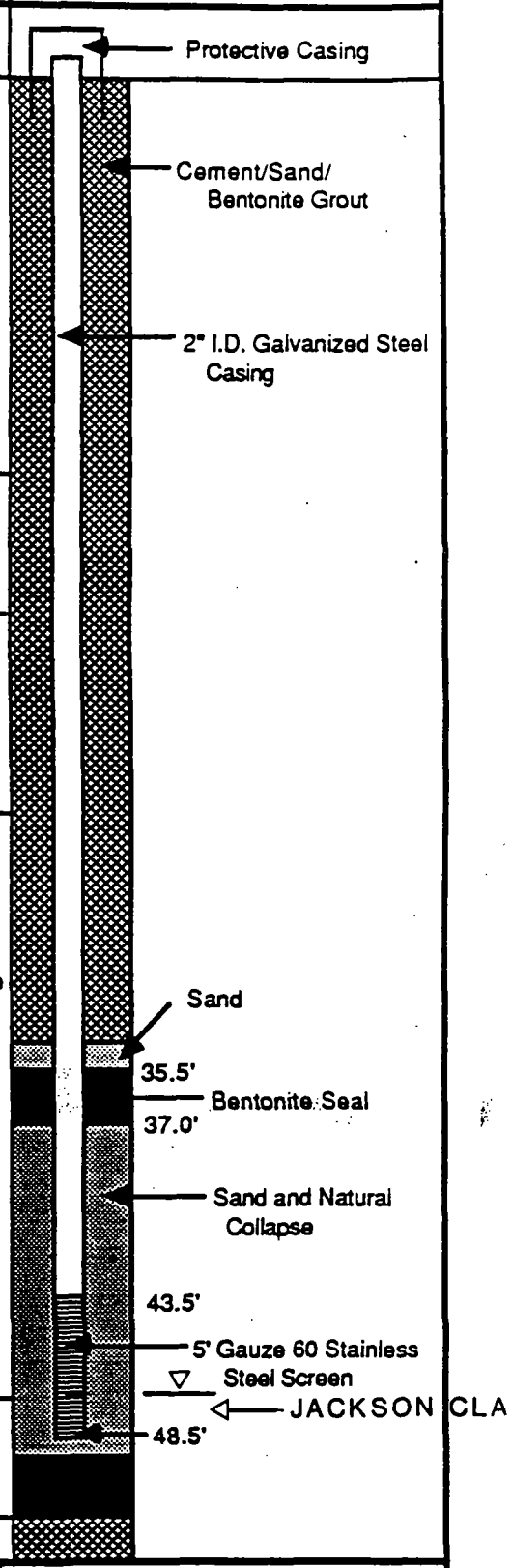
* Field-logged by Dames & Moore

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

MONITOR WELL
MW-14, page 2
June1988

Depth (Feet)	Sample Location	% Recovery	Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
					Top of Casing Elevation = 338.05 feet (msl) Ground Surface Elevation = 336.80 feet (msl)
0					Brown to brown-gray CLAYEY SILT to SILTY CLAY, with trace sand and occasional dark red-brown blebs; moist
		83	22		
		83	14		becomes mottled light gray and brown to dark brown
		83	12		
		83	17		becomes light brown to tan with light gray silt blebs; very moist
10		94	24		moist at 11 feet
		100	23		Light gray to tan fine - grained SILTY SAND with trace clay and occasional blebs as above; moist
		83	23		
20		100	16		Light to medium gray SANDY CLAY to CLAYEY SAND with trace fine gravel and large red-brown blebs; moist to very moist
		78	16		becomes mottled with red-brown; 4-inch gravel zone at 24 feet
		100	23		becomes brown, clayey, silty, medium-coarse sand with gravel; moist
		83	58		Light gray to orange-brown fine to medium poorly graded quartz SAND; moist to damp
30		83	72		very moist at 29 feet; increasing silt and some fine gravel
		89	60		sandy clay seam with dark purple-brown staining at 31.8 feet; grades to well-graded fine sand to fine gravel with trace silt at 32 feet
		56	90+		4-inch gravel zone at 34 feet
		61	100+		becomes very moist
40		100	-		becomes well-graded silty sand and gravel; wet
		78	56		moist to very moist at 41.5 feet 2-inch light brown fine sand seam; wet; grades to brown silty sand and gravel
		72	100+		becomes dark brown
		56	100+		Light gray to light tan CLAY with some fine sand; moist interbedded streaks of light gray clay in light orange-brown to light gray SAND
50		89	15		
		78	17		Boring terminated at 52.5 feet on 11/11/87

WELL CONSTRUCTION DETAILS



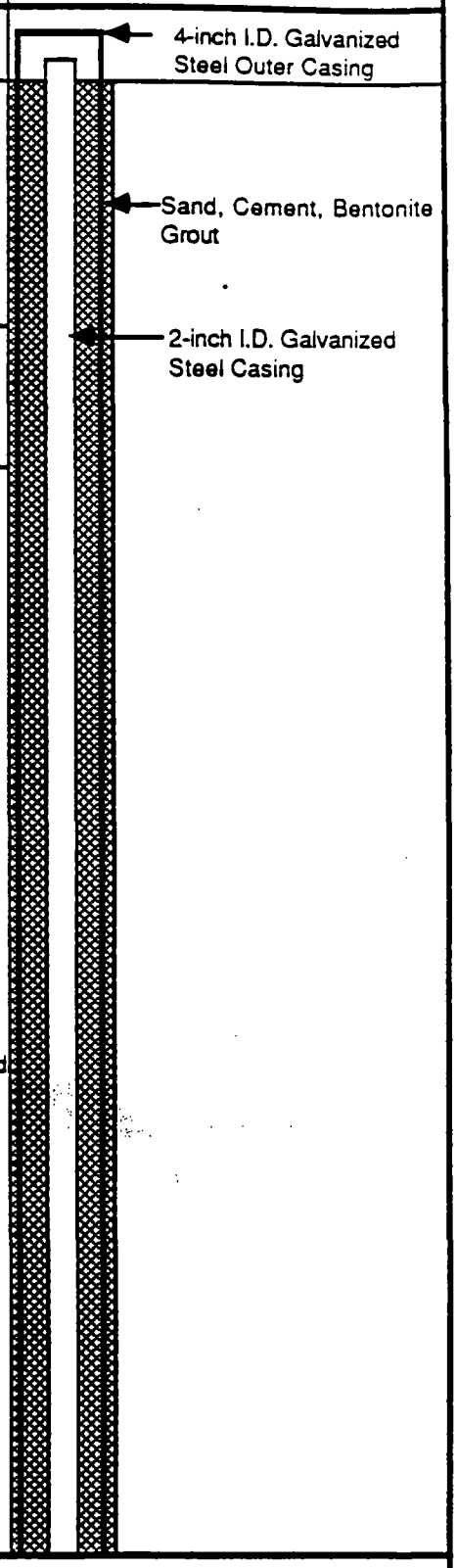
* Field-logged by Dames & Moore

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

MONITOR WELL
MW-15
June 1988

Depth (Feet)	Sample Location	% Recovery	Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
					Top of Casing Elevation = 338.08 feet (msl) Ground Surface Elevation= 335.60 feet (msl)
0		83	4		Brown clayey SILT mottled with light gray
		83	18		becomes more gray and moist
10		100	22		Brown silty CLAY mottled with gray, grades sandy dark and moist
		89	24		Orange fine to medium-grained well sorted SAND mottled with gray clayey silt, brown stains
20		67	50		
		100	62		becomes interbedded with tan, orange, and brown colored silty sand
30		78	50		becomes well sorted and bright orange with black streaks throughout
		94	25		becomes well sorted with some fine-grained silty sand seams
40		67	105		becomes well graded and medium to coarse-grained
		78	70		becomes slightly clayey
		78	50		
50		100	14		becomes very moist

WELL CONSTRUCTION DETAILS



*Field-Logged by ENSAFE

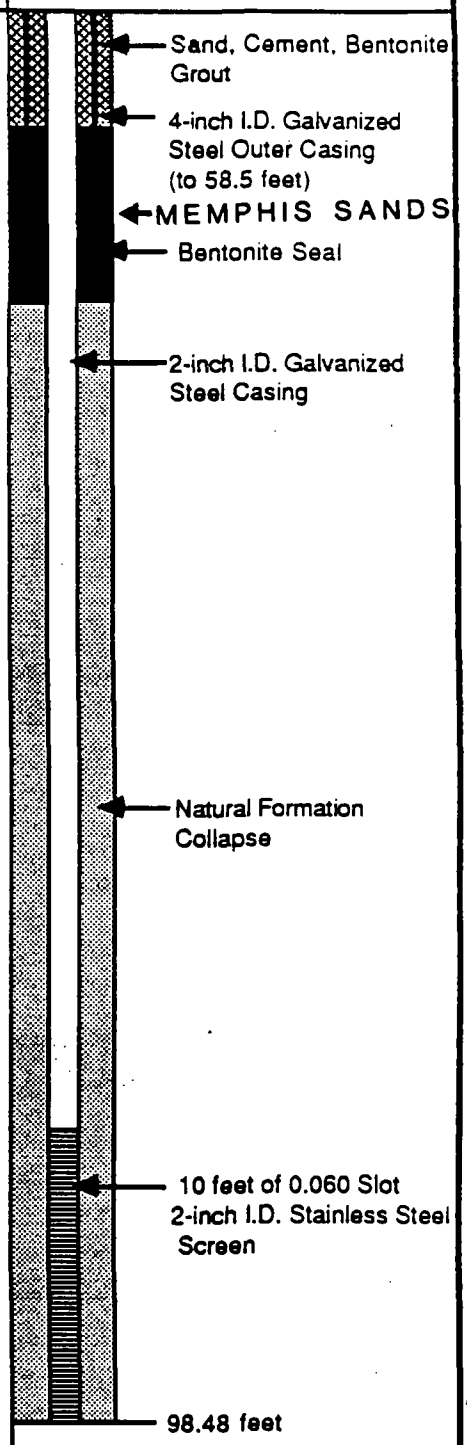
CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

MONITOR WELL
MW-16

June, 1988

Depth (Feet)	Sample Location	% Recovery	Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
50		100	60		becomes light orange to tan, saturated
		100	60		becomes coarse, well sorted, light tan
					Begin mud rotary drilling
		100	86		becomes well-graded, medium to coarse-grained sand with fine gravel
60					
		44	74		becomes yellowish in color
		89	65		becomes white
70					
		100	59		no recovery
		44	119		becomes white, medium-grained
80					
		55	99+		becomes intermixed with pink feldspar grains
		67	100+		becomes whitish gray
90					
		33	99+		
		67	61		
100					Boring terminated at 100 feet 5-10-88

WELL CONSTRUCTION DETAILS



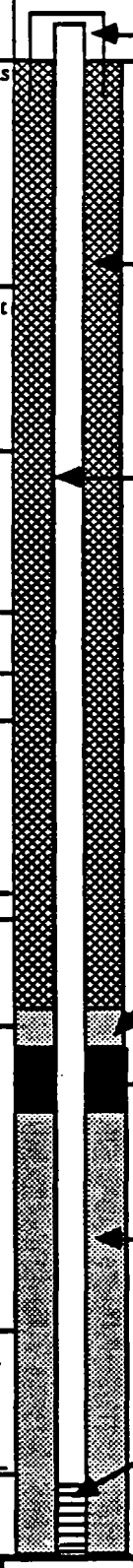
*Field-Logged by ENSAFE

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

MONITOR WELL
MW-16

June, 1988

Depth (Feet)	Sample Location	% Recovery	Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
					Top of Casing Elevation = 359.69 (msl) Ground Surface Elevation = 358.50 feet (msl)
0		94	34		Medium-brown to white CLAYEY SILT with varying amounts of clay
		100	25		becomes mottled brown and gray with some dark streaks
		100	27		becomes medium-dark brown
		100	22		Brown SILTY CLAY with some rust-colored streaks at 9.5 feet
10		100	19		becomes medium-dark brown
		100	20		Light red-brown SANDY CLAY with some pea gravel
		100	29		becomes light gray and orange-brown becomes speckled with red becomes mottled red, gray, and orange
20		100	83		Light gray to red-orange fine-grained SAND with trace o clay
		89	55		Light gray CLAYEY SAND with red streaks
		100	45		Yellow-white to light gray, fine-grained well - graded SAND with trace clay; dry
		100	62		1/8-inch to 1/4-inch yellow, white, red, and orange-red layers at 26.5 - 27.5 feet
30		100	20		Orange-brown CLAYEY SAND with gravel
		100	50		Light gray-brown CLAY with some sand; very hard becomes light pink-gray to pale orange and micaceous with some large gravel
		100	56		White and yellow coarse-grained SAND with gravel
		100	40		
40		100	31		becomes to orange-brown
		-	32		
		100	69		Yellow to white well-graded fine to coarse-grained SAND with fine gravel
		100	69		
50		100	19		Orange-brown CLAY with trace of sand; moist JACKSON CLAY



Log continued on page 2

* Field-logged by ENSAFE

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

MONITOR WELL
MW-19, page 1
June 1988

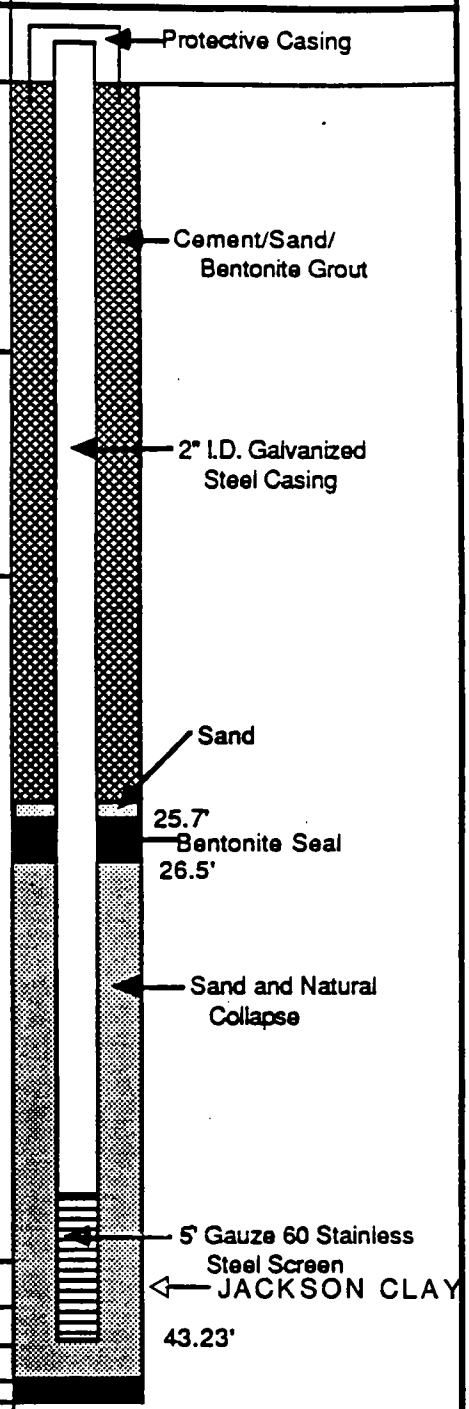
Depth (feet)	Sample Location	% Recovery	Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*	WELL CONSTRUCTION DETAILS
50					Orange - brown CLAY with trace of sand; moist	5' Gauze 60 Stainless Steel Screen
		100	12		becomes mottled brown and gray	
					Boring terminated at 54 feet (sampled to 55.5 feet) on 11/25/87.	
60						
70						
80						
90						
100						

* Field-logged by ENSAFE

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

MONITOR WELL
MW-19, page 2
June 1988

Depth (Feet)	Sample Location	% Recovery	Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
					Top of Casing Elevation = 353.35 feet (msl) Ground Surface Elevation = 351.60 feet (msl)
0					Medium brown to white CLAYEY SILT
		100	39		becomes mottled medium-brown and tan
		100	28		dark organic streaks at 4.5 to 5.0 feet
		94	27		
					dark organic band at 9.1 to 9.2 feet
10		100	16		Medium to red - brown SILTY CLAY with some sand
		100	18		dark organic material
		100	36		becomes yellow-brown to red-brown
		100	60		becomes mottled light gray and tan with red streaks and some sand
		100	68+		Yellow-orange to tan, well-graded SAND with trace of silt; dry
20					
		100	47		
		100	41		
		100	9		
		100	14		
30					
		100	57		
		100	71+		
		78	71+		
		100	39		
40					
		100	11		Orange-brown SANDY CLAY
					Orange-brown to light gray CLAY
		-	10		Orange-brown SANDY CLAY, as above
					Orange-brown to gray CLAY
					Boring terminated at 45 feet on 12/1/87
50					



* Field-logged by ENSAFE

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

MONITOR WELL
MW-21
June 1988

Depth (Feet)	Sample Location	% Recovery	Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS	WELL CONSTRUCTION DETAILS
					Top of Casing Elevation = 340.59 feet (msl) Ground Surface Elevation = 338.50 feet (msl)	Protective Casing
0		89	14		Mottled light brown and gray to orange-brown CLAYEY SILT with trace sand	
		100	18		Brown to orange SILTY CLAY with dark organic blebs	Cement/Sand/ Bentonite Grout
		100	12		becomes light gray with some silt at 7.0 feet to 7.5 feet becomes mottled light brown with dark organic blebs	
		100	13		Orange-brown SANDY CLAY	
10		100	15		Medium-brown SILTY CLAY	2" Galvanized Steel Casing
					SANDY CLAY with some gravel and dark brown silt	
		100	63+		Brown to orange, fine to coarse SAND with some gravel and clay	Sand
		100	61		thin (0.1 foot) orange and white bands from 16.6 feet to 17.5 feet	17' Bentonite Seal 18'
20		100	61			
					Light gray SANDY CLAY	
		89	67+		Yellow-brown to yellow-white fine to coarse SAND with rock fragments; damp	Sand and Natural Collapse
		67	79+		becomes light tan and fine to medium-grained with trace silt	
		89	02+		becomes yellow-orange and with chert gravel at 23.8 feet	27.7' ▽
30		100	13		brown sand and clay interlayered with black streaks; wet	5' Gauze 60 Stainless Steel Screen
		100	23			32.7'
			20		Brown to orange-brown SANDY CLAY with some black streaks; hard	JACKSON CLAY
					Boring terminated at 35 feet on 11/24/87	
40						
50						

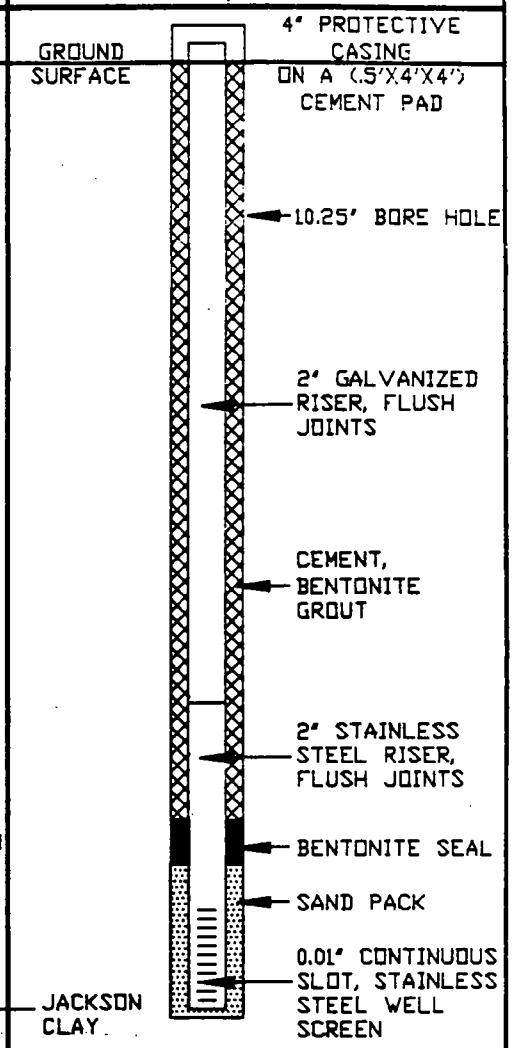
* Field-logged by ENSAFE

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

MONITOR WELL
MW-23
June 1988

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
					TOP OF CASING ELEVATION = 345.07' GROUND SURFACE ELEVATION = 342.90'
5	SS	83	25	0.2	BROWN TO TAN SANDY SILT, TRACE OF CLAY ROCK FRAGMENTS APPROXIMATELY 7.0 FT.
10					
15	SS	83	48	0.2	BROWN SILTY CLAY, SOME ORGANIC STREAKS, @ 15.1' BECOMES ORANGE TO RUST COLORED FINE TO MEDIUM GRAINED SAND.
	SS	42	66	0.2	GRADATIONAL BANDS OF WHITE & RUST SAND, MEDIUM TO FINE GRAINED W/ ABUNDANT GRAVEL.
20	SS	88	55	0.2	ORANGE TO RUST SAND & GRAVEL SOME IRON @ APPROXIMATELY 23.5 FT.
25					
30	SS	79	125	0.2	ORANGE, MEDIUM GRAINED, MODERATELY SORTED MOIST SAND, GRAVEL FRAGMENTS, IRON @ APPROXIMATELY 31.0 FT.
35					
40	SS	100	74	0.2	38.0-38.6 FT. MEDIUM GRAINED ORANGE SAND & GRAVEL, POORLY SORTED. 38.6-39.0 FT. LT. TAN WELL SORTED FINE TO MEDIUM GRAINED SAND, MOIST. 39.0-40.0 FT. ORANGE WELL SORTED FINE GRAINED SAND.
45	SS	83	17	0.2	FINE TO MEDIUM GRAINED MODERATELY SORTED SAND, RUST TO BROWN COLOR, @ 47.6 FT. BECOMES SANDY CLAY W/ SOME ROCK FRAGMENTS, @ 47.9 FT. CLAY-TIGHT-GRAY & MAROON-TYPICAL OF JACKSON CLAY.
50					
55					BORING TERMINATED @ 48.0 FT. AND WELL SET @ 47.9 FT. ON 7/19/90.
60					

WELL CONSTRUCTION DETAILS



NOTE: WELL IS DRY

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MW-25

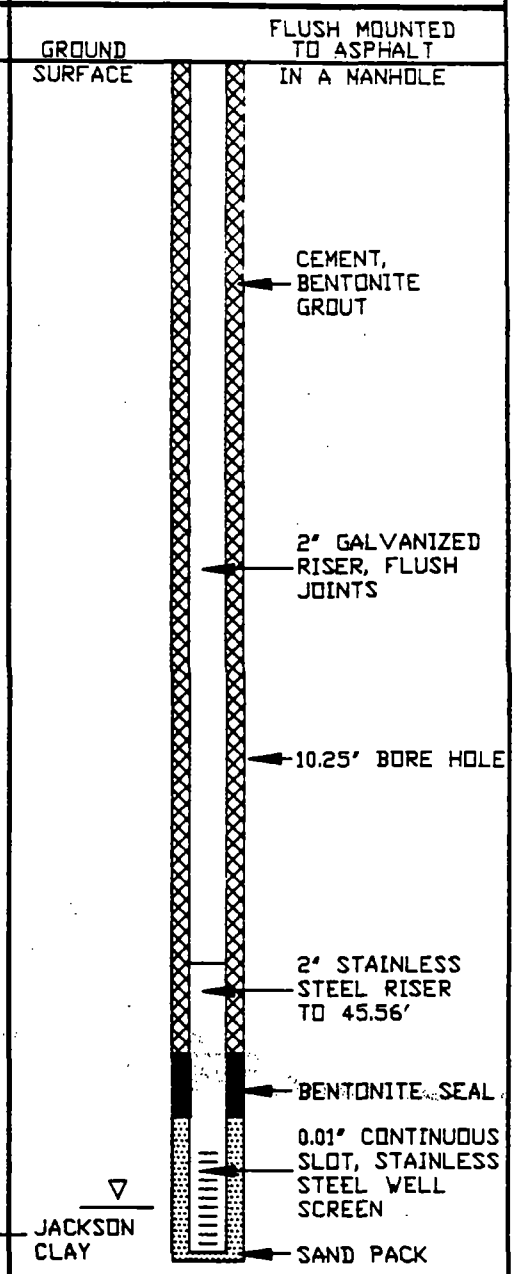
COLLIERVILLE SITE
COLLIERVILLE, TN.

DWG DATE: 02/19/91 | DWG NAME: CARRW14

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
					TOP OF CASING ELEVATION = 342.82' GROUND SURFACE ELEVATION = 343.30' SURFACE: ASPHALT PARKING LOT
5	SS	100	13	0.2	BROWN-GRAY MOTTLED SILTY CLAY.
10	SS	90	12	0.2	MORE CLAY AND IRON STAINING.
15	SS	100	27	0.2	LIGHT BROWN-GRAY MOTTLED SANDY SILT.
20	SS	100	40	0.2	ORANGE-LIGHT BROWN SANDY SILT.
25	SS	95	40	0.2	BROWN SILTY FINE SAND W/ GRAVEL.
30	SS	95	40	0.2	BROWN SILTY FINE TO MEDIUM GRAINED SAND W/ GRAVEL & IRON STAINING.
35	SS	100	38	0.2	BROWN FINE TO MEDIUM GRAINED SAND W/ ROCK FRAGMENTS.
40	SS	80	68	0.2	BROWN FINE TO MEDIUM GRAINED SAND W/ ROCK FRAGMENTS.
45	SS	90	62	0.2	BROWN FINE TO MEDIUM GRAINED SAND W/ GRAVEL.
50	SS	95	100	0.2	BROWN FINE TO MEDIUM GRAINED SAND W/ GRAVEL.
55	SS	80	74	0.2	BROWN FINE TO MEDIUM GRAINED SAND W/ GRAVEL.
60	SS	100	11	0.2	LIGHT GRAY SILTY CLAY.

BORING TERMINATED @ 60.6' AND WELL SET @ 60.56' ON 8/14/90.

WELL CONSTRUCTION DETAILS



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MW-27

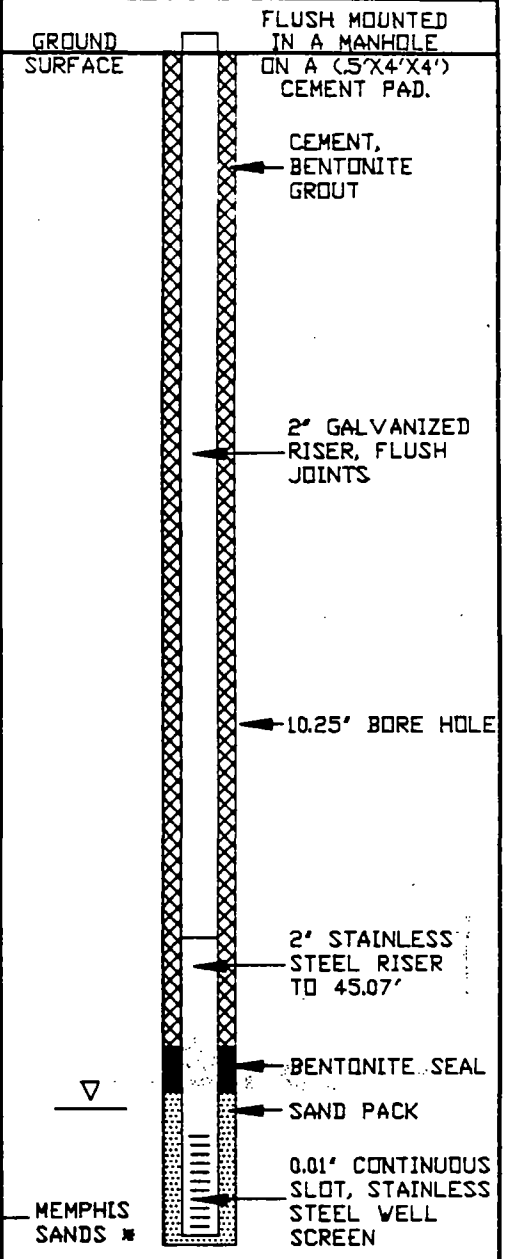
COLLIERVILLE SITE
COLLIERVILLE, TN.

DWG DATE: 02/19/91 | DWG NAME: CARRW4

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
					TOP OF CASING ELEVATION = 337.30' GROUND SURFACE ELEVATION = 337.30'
5	SS	85	18	.13	BROWN-LIGHT GRAY MOTTLED SILTY SAND
10	SS	90	15	.13	BROWN-LIGHT GRAY MOTTLED SANDY SILT
15	SS	90	13	.13	SAME W/ IRON STAINING
20	SS	100	20	.13	GRAY SANDY SILT W/ IRON STAINING
25	SS	90	22	.13	BROWN SILTY SAND W/ IRON STAINING & PEBBLES
30	SS	80	50	.13	MEDIUM GRAY-ORANGE BROWN SAND W/ PEBBLES
35	SS	90	102	.13	SAME W/ IRON STAINING & ROCK FRAGMENTS, MOIST IN LAST 0.25'
40	SS	90	60	.13	SAME BUT MOIST @ 38.65'
45	SS	90	74	.13	SAME W/ DARK ORGANIC MOTTLING
50	SS	100	120	.13	SAME BUT MOIST @ 49.5'
55	SS	95	39	.13	BROWN MEDIUM TO COARSE SAND W/ ABUNDANT ROCK FRAGMENTS, WET
60	SS	100	56	.13	BROWN-WHITE FINE TO COARSE GRAINED SAND W/ A FEW ROCK FRAGMENTS, WET

BORING TERMINATED @ 60.10' AND WELL SET @ 60.07' ON 8/16/90.

WELL CONSTRUCTION DETAILS



* JACKSON CLAY IS ABSENT

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MW-29

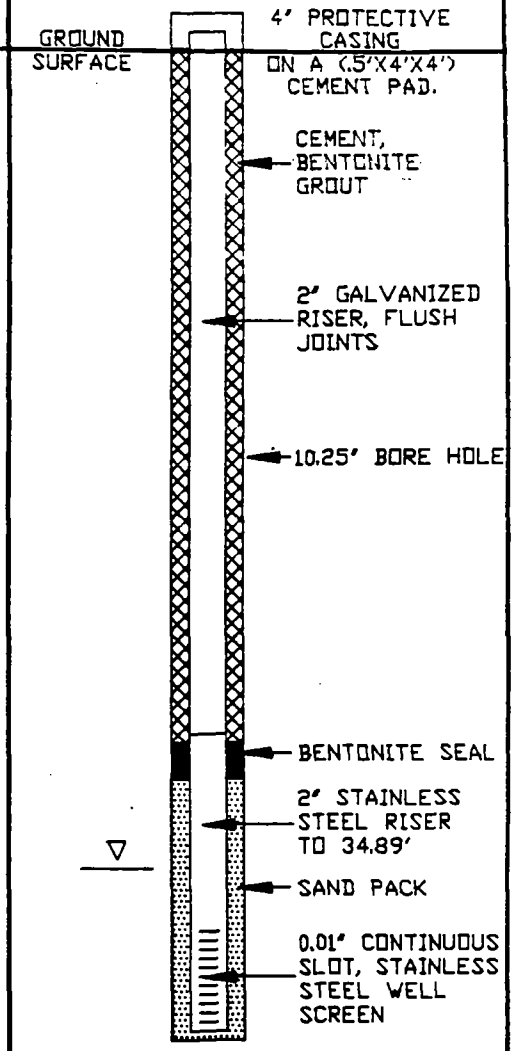
COLLIERVILLE SITE
COLLIERVILLE, TN.

DWG DATE: 02/19/91 | DWG NAME: CARRW5

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
					TOP OF CASING ELEVATION = 337.38' GROUND SURFACE ELEVATION = 337.20'
5	SS	87	26	0.3	MOTTLED BROWN-GRAY CLAYEY SILT
10	SS	90	16	0.3	SAME W/ ORGANIC STAINING
15	SS	90	18	0.3	SAME AS ABOVE
20	SS	90	18	0.3	BROWN-GRAY SANDY SILT TO 19.4', GRADING TO GRAY SILTY SAND W/ GRAVEL, MOIST.
25	SS	90	62	0.3	BROWN SILTY SAND TO 23.8', GRADING TO ORANGE-BROWN MEDIUM TO COARSE GRAINED SAND W/ PEA GRAVEL.
30	SS	100	RF	0.4	ORANGE MEDIUM GRAINED SAND TO 28.7', GRADING TO ORANGE-BROWN SAND W/ GRAVEL & IRON CONCRETIONS.
35	SS	80	72	0.4	BROWN-ORANGE MEDIUM TO COARSE GRAINED SAND W/ PEA GRAVEL & IRON STAINING & CONCRETIONS, MOIST.
40	SS	83	53	0.2	BROWN-ORANGE MEDIUM TO COARSE GRAINED SAND W/ GRAVEL, WET.
45	SS	83	122	0.3	SAME AS ABOVE
50	SS	87	62	0.3	SAME AS ABOVE
55					
60					

BORING TERMINATED @ 50.0' AND WELL SET @ 49.89' ON 8/3/90.

WELL CONSTRUCTION DETAILS



JACKSON CLAY BELIEVED TO BE ABSENT BELOW THE WELL.

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MW-31

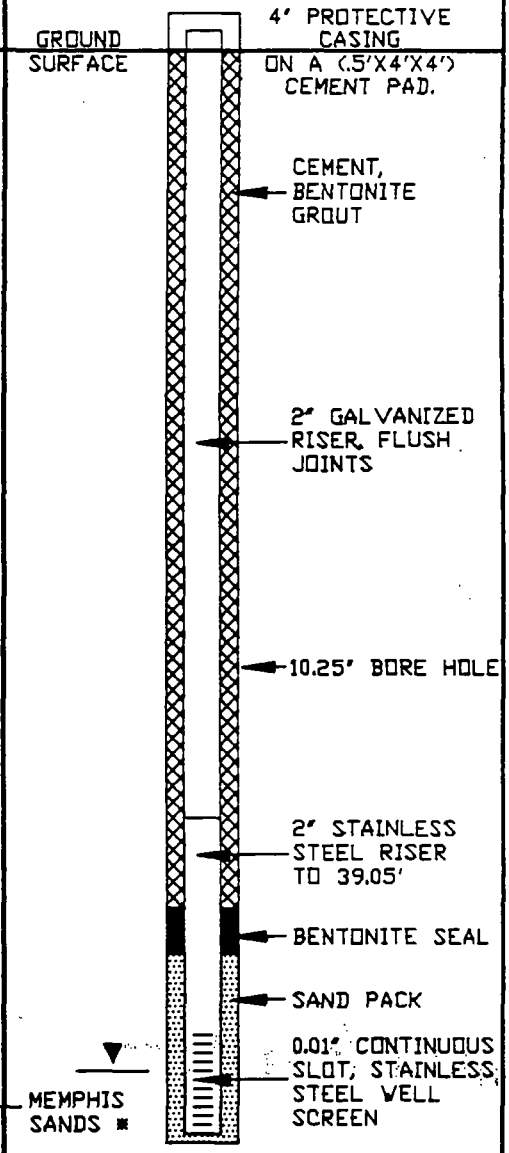
COLLIERVILLE SITE
COLLIERVILLE, TN.

DWG DATE: 02/19/91 | DWG NAME: CARRW6

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
					TOP OF CASING ELEVATION = 338.47' GROUND SURFACE ELEVATION = 335.90'
5	SS	87	11	0.0	BROWN SILTY CLAY
10	SS	100	18	0.0	SAME W/ GRAY MOTTLING & ORGANIC STAINING
15	SS	87	19	0.0	SAME AS ABOVE
20	SS	66	64	0.0	BROWN CLAYEY FINE TO MEDIUM GRAINED SAND, BANDS OF RED-BROWN ORGANIC STAINS & ROCK FRAGMENTS.
25	SS	100	94	0.0	BROWN SILTY FINE-MEDIUM GRAINED SAND W/ A 0.3' BAND OF SILTY CLAY & ORGANIC STAINS.
30	SS	100	62	0.0	BROWN SILTY FINE TO MEDIUM GRAINED SAND W/ ROCK FRAGMENTS & DARK STAINING.
35	SS	100	105	0.0	BROWN SILTY MEDIUM TO COARSE GRAINED SAND W/ ABUNDANT ROCK FRAGMENTS.
40	SS	100	95	0.0	BROWN MEDIUM TO COARSE GRAINED SAND W/ ROCK FRAGMENTS.
45	SS	100	76	0.0	SAME W/ DARK BANDS OF STAIN, MOIST
50	SS	100	110	0.0	SAME W/ DARK MOTTLING
55	SS	42	53	0.0	WHITE-REDDISH BROWN MEDIUM TO COARSE SAND, WET.
60					

BORING TERMINATED @ 55.0' AND WELL SET @ 54.05' ON 7/27/90.

WELL CONSTRUCTION DETAILS



* JACKSON CLAY IS ABSENT

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MW-33

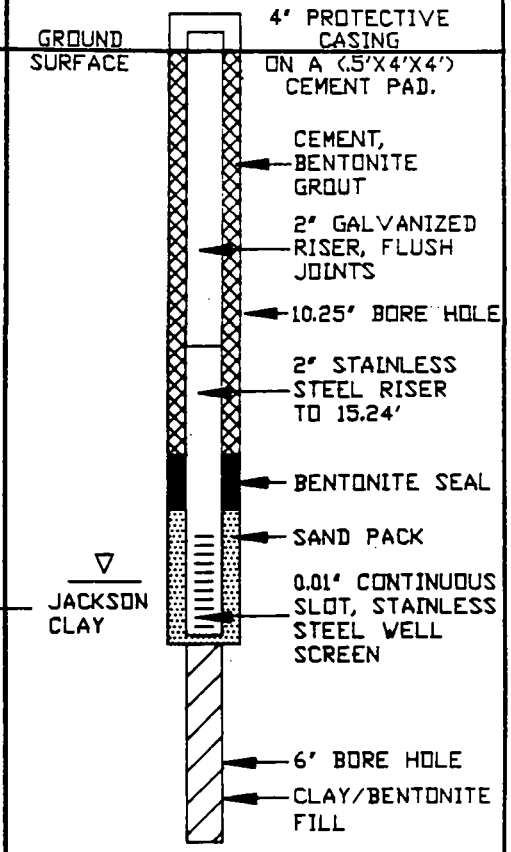
COLLIERVILLE SITE
COLLIERVILLE, TN.

DWG DATE: 02/19/91 | DWG NAME: CARRW7

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
					TOP OF CASING ELEVATION = 336.90' GROUND SURFACE ELEVATION = 335.00'
5	SS	90	17	0.0	BROWN-GRAY MOTTLED SILT W/ CLAY & ORGANIC STAINS.
10	SS	80	37	0.0	BROWN-LIGHT CLAY SILTY CLAY W/ ROCK FRAGMENTS.
15	SS	100	24	0.0	BROWN-GRAY MOTTLED SANDY CLAY
20	SS	90	15	0.0	SAME W/ IRON STAINS
25	SS	90	40	0.0	TAN CLAYEY SAND W/ IRON STAINS
30	SS	100	17	0.0	ORANGE-TAN SILTY CLAY W/ A TRACE OF SAND & BLACK STAINING.
35	SS	100	10	0.0	LIGHT ORANGE-GRAY CLAY
40	SS	100	13	0.0	GRAY SANDY CLAY
45					
50					
55					
60					

BORING TERMINATED @ 40.0' AND WELL SET @ 30.24' ON 7/30/90.

WELL CONSTRUCTION DETAILS



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MW-35

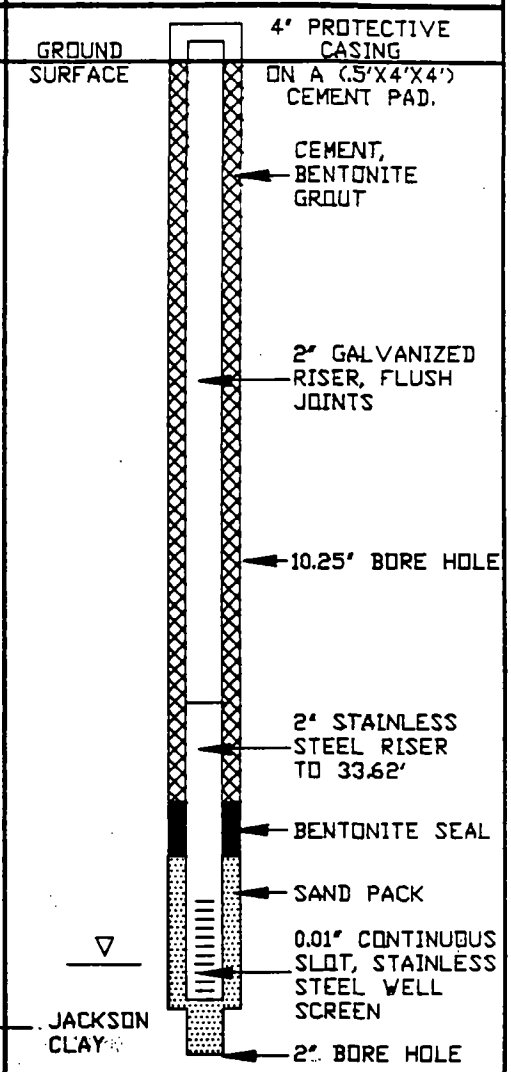
COLLIERVILLE SITE
COLLIERVILLE, TN.

DWG DATE: 02/19/91 | DWG NAME: CARRW8

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
					TOP OF CASING ELEVATION = 351.18' GROUND SURFACE ELEVATION = 349.60'
5	SS	100	17	0.0	BROWN SILTY CLAY W/ DARK ORGANIC STREAKS
10	SS	87	39	0.0	BROWN MOTTLED RED & GRAY SILTY CLAY
15	SS	100	26	2.3	SAME TO 13.5', GRADING TO BROWN MOTTLED RED-GRAY SANDY SILTY CLAY.
20	SS	100	74	0.0	WHITE TO REDDISH-YELLOW BROWN SILTY FINE TO MEDIUM GRAINED SAND.
25	SS	100	43	0.0	BROWN-GRAY MOTTLED RED SILTY CLAY
30	SS	100	50	0.0	WHITE TO YELLOW-BROWN SILTY FINE TO MEDIUM GRAINED SAND W/ A CLAY SEAM. GRADES TO YELLOW-BROWN MEDIUM TO COARSE GRAINED SAND W/ PEBBLES.
35	SS	75	66	0.0	YELLOW-BROWN MEDIUM TO COARSE GRAINED SAND W/ PEBBLES.
40	SS	100	60	0.0	YELLOW-BROWN MEDIUM TO COARSE GRAINED SAND W/ ABUNDANT GRAVEL.
45	SS	75	17	0.0	SAME GRADING TO MOTTLED GRAY-BROWN CLAYEY SAND W/ BLACK ORGANIC STAINING.
50	SS	75	15	0.0	MOTTLED BROWN-GRAY SILTY CLAY ← JACKSON CLAY
55					
60					

BORING TERMINATED @ 50.0' AND WELL SET @ 48.62' ON 7/25/90.

WELL CONSTRUCTION DETAILS



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MW-37

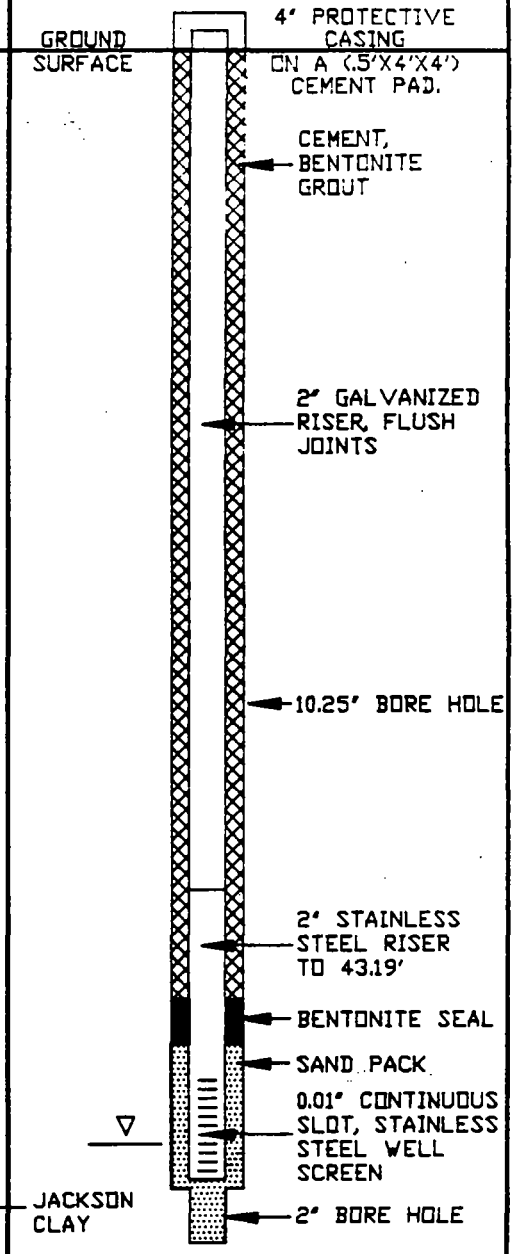
COLLIERVILLE SITE
COLLIERVILLE, TN.

DWG DATE: 02/19/91 | DWG NAME: CARRW9

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
					TOP OF CASING ELEVATION = 361.50' GROUND SURFACE ELEVATION = 359.70'
5	SS	90	24	0.4	GRAY & BROWN MOTTLED CLAYEY SILT W/ ABUNDANT IRON NODULES & STAINING.
10	SS	90	18	0.4	SAME W/ TRACE OF SAND
15	SS	90	31	0.4	BROWN SILTY CLAY W/ A TRACE OF SAND & ABUNDANT IRON NODULES & STAINING.
20	SS	90	38	0.4	SAME GRADING TO ORANGE-RED SANDY CLAY @ 19.4'
25	SS	83	54	0.4	ORANGE & RED MOTTLED CLAYEY SAND W/ MICA FLAKES.
30	SS	100	23	1.2	ORANGE TO RED FINE TO MEDIUM GRAINED SAND BECOMING DARKER RED W/ CLAY @ 29.6'.
35	SS	100	110	0.6	BROWN FINE TO COARSE GRAINED SAND W/ GRAVEL
40	SS	75	50	0.2	BROWN MEDIUM TO COARSE GRAINED SAND W/ GRAVEL, BECOMING LIGHT YELLOW-BROWN.
45	SS	100	101	0.2	SAME W/ BROWN CLAY SEAM
50	SS	90	90	0.2	SAME AS ABOVE
55	SS	90	75	0.2	SAME W/ TRACE OF CLAY & CHERT, WET
60	SS	90	11	0.2	YELLOW-ORANGE MOTTLED DENSE CLAY W/ A TRACE OF SAND.

BORING TERMINATED @ 60.0' AND WELL SET @ 58.19' ON 8/1/90.

WELL CONSTRUCTION DETAILS



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MW-39

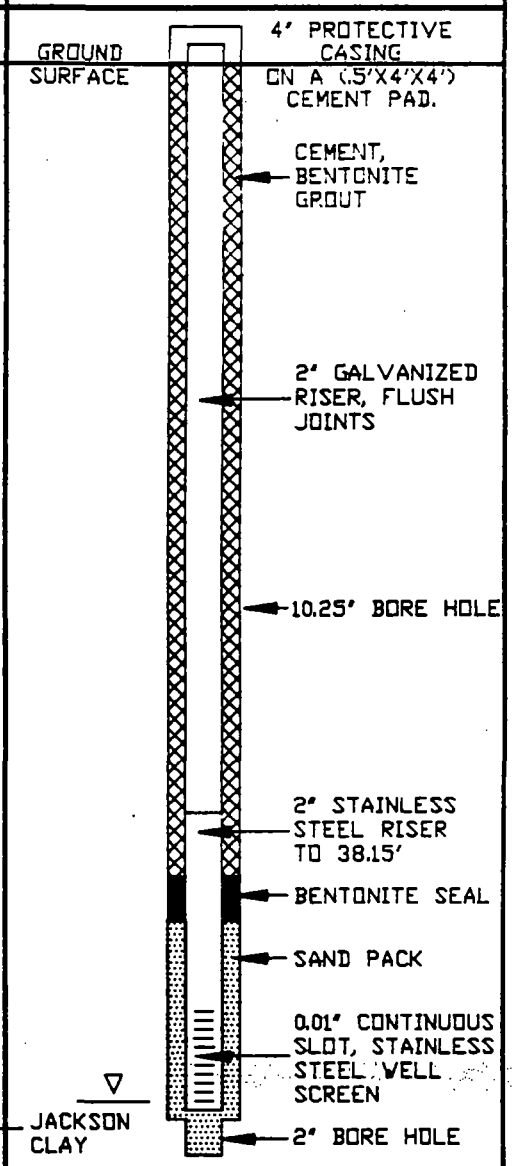
COLLIERVILLE SITE
COLLIERVILLE, TN.

DWG DATE: 02/19/91 | DWG NAME: CARRW10

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
					TOP OF CASING ELEVATION = 351.84' GROUND SURFACE ELEVATION = 349.90'
5	SS	75	12	0.1	MOTTLED BROWN-GRAY CLAYEY SILT W/ IRON STAINS
10	SS	100	14	0.1	SAME AS ABOVE
15	SS	90	21	0.1	SAME, GRADING INTO A BROWN SILTY FINE TO MEDIUM GRAINED SAND.
20	SS	95	83	0.1	BROWN-ORANGE MEDIUM GRAINED SAND
25	SS	90	28	0.1	BROWN TO RED MEDIUM GRAINED SAND W/ GRAVEL & A LIGHT BROWN CLAYEY SILT STREAK.
30	SS	100	58	0.1	BROWN SILTY MEDIUM GRAINED SAND W/ GRAVEL, IRON STAINING & A THIN CLAY STREAK.
35	SS	90	53	0.1	BROWN MEDIUM TO COARSE GRAINED SAND W/ ABUNDANT PEBBLES & ROCK FRAGMENTS.
40	SS	100	112	0.1	SAME AS ABOVE
45	SS	100	180	0.1	SAME AS ABOVE
50	SS	90	86	0.1	SAME W/ IRON STAINING
55	SS	100	8	0.1	LIGHT GRAY MOTTLED RED SLIGHTLY SILTY CLAY ← JACKSON CLAY
60					

BORING TERMINATED @ 55.0' AND WELL SET @ 53.15' ON 8/8/90.

WELL CONSTRUCTION DETAILS



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5724 SUMMERTREES DR. MEMPHIS, TN. 38134 (901)372-7962

MW-41

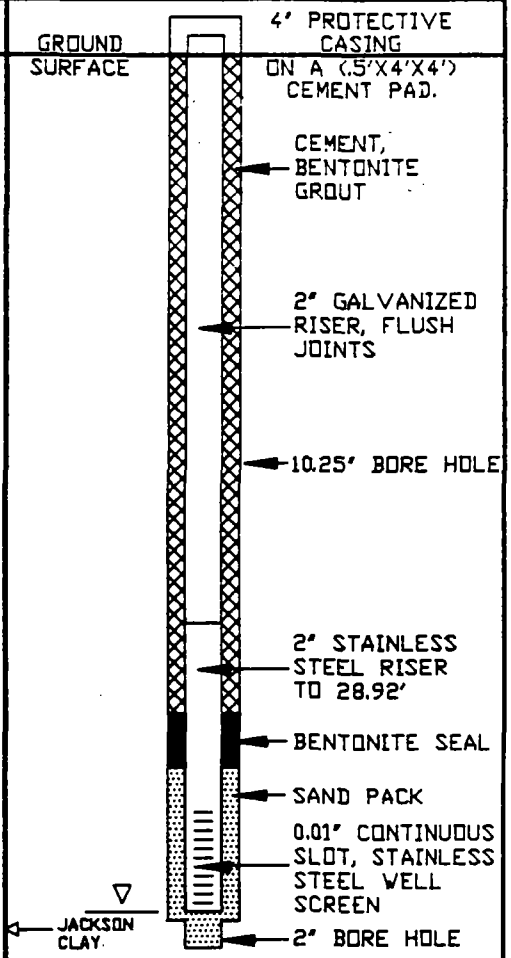
COLLIERVILLE SITE
COLLIERVILLE, TN.

DWG DATE: 02/19/91 | DWG NAME: CARRW11

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
					TOP OF CASING ELEVATION = 358.01' GROUND SURFACE ELEVATION = 355.60'
5	SS	90	19	0.4	GRAY TO BROWN SILTY CLAY W/ DARK ORGANIC STAINING.
10	SS	50	14	0.4	BROWN SILTY CLAY W/ DARK ORGANIC STAINING
15	SS	100	17	0.4	SAME AS ABOVE
20	SS	100	23	0.4	BROWN-WHITE FINE GRAINED SAND
25	SS	95	56	0.4	BROWN-RED-YELLOW FINE TO MEDIUM GRAINED SAND
30	SS	95	16	0.4	GRAY-RED SLIGHTLY SILTY CLAY
35	SS	83	118	0.4	BROWN MEDIUM TO COARSE GRAINED SAND W/ ABUNDANT PEBBLES.
40	SS	95	124	0.4	SAME BUT SLIGHTLY MOIST
45	SS	83	15	0.4	BROWN & GRAY MOTTLED SILTY CLAY, SLIGHTLY WET
50					
55					
60					

BORING TERMINATED @ 45.0' AND WELL SET @ 43.92' ON 8/20/90.

WELL CONSTRUCTION DETAILS



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MW-43

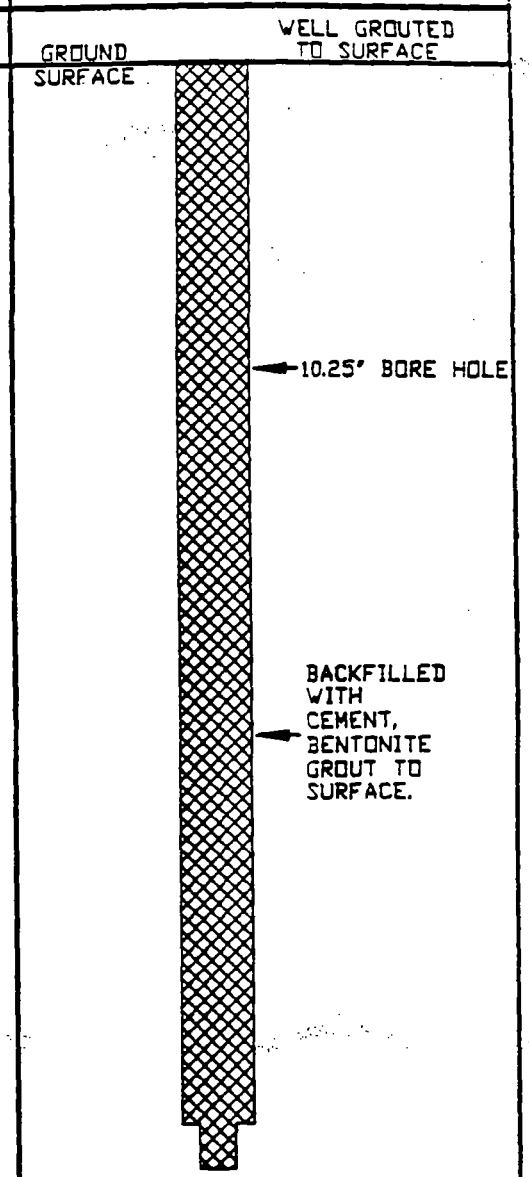
COLLIERVILLE SITE

COLLIERVILLE, TN.

DWG DATE: 02/19/91 | DWG NAME: CARRW12

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
5	SS	66	9	0.2	BROWN SILTY CLAY W/ ROOTS
10	SS	83	9	0.2	BROWN-GRAY MOTTLED SILTY CLAY
15	SS	75	38	0.2	BROWN-RED STIFF SANDY CLAY
20	SS	75	15	0.2	BROWN-GRAY MOTTLED CLAYEY FINE GRAINED SAND W/ ABUNDANT MICA FLAKES.
25	SS	75	73	0.2	WHITE MEDIUM TO COARSE GRAINED SAND W/ GRAVEL, WHITE CHALKY NODULES & YELLOW STAINING.
30	SS	87	70	0.2	BROWN-YELLOW/GRAY SILTY FINE TO MEDIUM GRAINED SAND W/ ABUNDANT GRAVEL.
35	SS	80	49	0.2	BROWN-YELLOW/GRAY MEDIUM TO COARSE GRAINED SAND W/ GRAVEL.
40	SS	90	59	0.2	WHITE-YELLOW/GRAY MEDIUM TO COARSE GRAINED SAND W/ GRAVEL.
45	SS	95	87	0.2	SAME AS ABOVE
50	SS	83	90		BROWN-YELLOW MEDIUM TO COARSE GRAINED SAND W/ GRAVEL, LAST 0.5' MOIST.
55	SS	95	12	0.2	DOWN TO 53.25' BROWN SANDY CLAY, REMAINDER STIFF BROWN MOTTLED GRAY SILTY CLAY.
60					BORING TERMINATED @ 55.0' AND WELL SET @ 53.0' ON 8/22/90. WELL PIPE WAS PULLED & THE HOLE WAS GROUTED TO SURFACE ON 8/23/90 AS THE RESULT OF AN ACCESS DISPUTE W/ A LOCAL LANDOWNER.

WELL CONSTRUCTION DETAILS



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5795 STAGE RD. MEMPHIS, TN. 38134 (901)373-7962

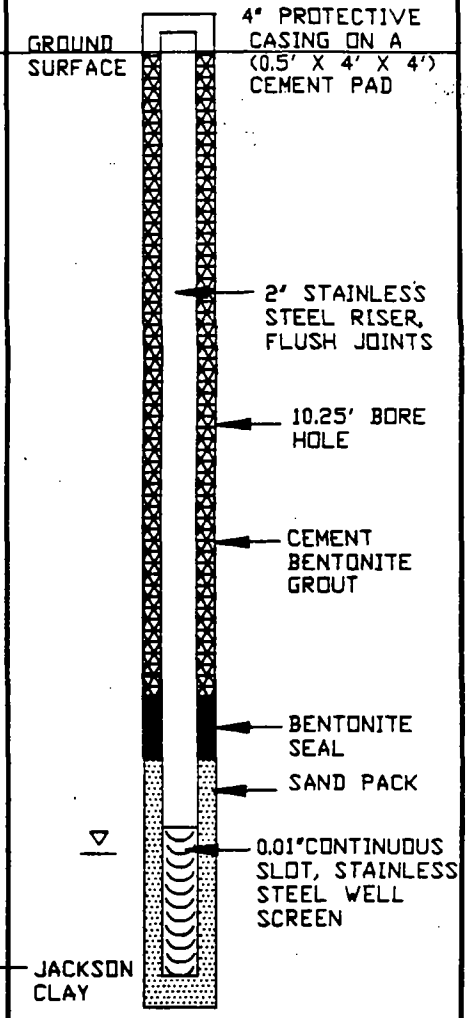
MW-45

COLLIERVILLE SITE
COLLIERVILLE, TN.

DWG DATE: 10/03/90 | DWG NAME: CARRW13

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
					TOP OF CASING ELEVATION: 342.82' GROUND SURFACE ELEVATION: 339.75'
	SS	100	25	0.2	BROWN SILTY CLAY WITH RED AND GRAY STREAKS. TRACE OF WHITE FINE GRAINED SAND IN THE LAST 1.0'.
10	SS	92	14	0.4	MOTTLED RED-WHITE SILTY CLAY. 0.5' INTERVAL OF CLAYEY FINE GRAINED SAND AT 8.5'.
	SS	75	81	0.2	WHITE FINE GRAINED SAND WITH GRAVEL.
20	SS	50	56	0.2	SAME AS ABOVE.
	SS	58	33	0.2	SAME AS ABOVE.
30	SS	75	102	0.2	BROWN FINE TO MEDIUM GRAINED SAND AND GRAVEL, SLIGHTLY MOIST.
	SS	100	8	0.2	UPPER 0.3' IS BROWN MEDIUM TO FINE GRAINED SAND AND GRAVEL. LAST 1.7' OF SAMPLE IS BROWN-RED MOTLED GRAY SILTY CLAY, WET.
40					
					BORING TERMINATED AT 35.0' AND WELL SET AT 34.0' ON 3/19/91.

WELL CONSTRUCTION DETAILS



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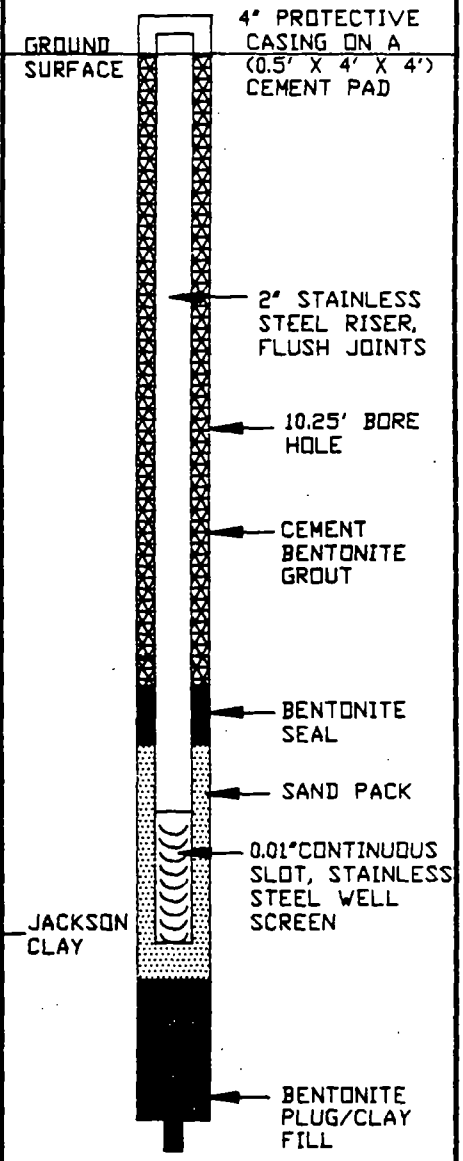
5724 SUMMER TREE DR. MEMPHIS, TN. 38134 #(901)372-7962

MW-47
MONITORING WELL
COLLIERVILLE SITE
COLLIERVILLE, TN.

DATE: 06/19/91 | DWG NAME: CARRMW4

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
					TOP OF CASING: 351.62' GROUND SURFACE ELEVATION: 349.29'
	SS	100	8	0.0	BROWN-GRAY MOTTLED SILTY CLAY.
10	SS	92	14	0.0	SAME AS ABOVE.
	SS	100	12	0.0	BROWN-GRAY MOTTLED SILTY TO VERY FINE GRAINED SANDY CLAY.
20	SS	100	67	0.0	SAME AS ABOVE IN THE FIRST 1.7' OF SAMPLE, GRADING TO BROWN MEDIUM GRAINED SAND WITH ROCK FRAGMENTS IN THE LAST 0.3'.
	SS	83	67	0.0	BROWN FINE TO MEDIUM GRAINED SAND WITH ROCK FRAGMENTS.
30	SS	63	91	0.0	SAME AS ABOVE.
	SS	100	11	0.0	BROWN-GRAY MOTTLED SILTY CLAY WITH BLACK STAINING.
40	SS	100	14	0.0	BROWN-GRAY MOTTLED SILTY TO VERY FINE GRAINED SANDY CLAY.
50					BORING TERMINATED AT 40.0' AND WELL SET AT 33.0' ON 4/15/91.

WELL CONSTRUCTION DETAILS



NOTE: WELL IS DRY

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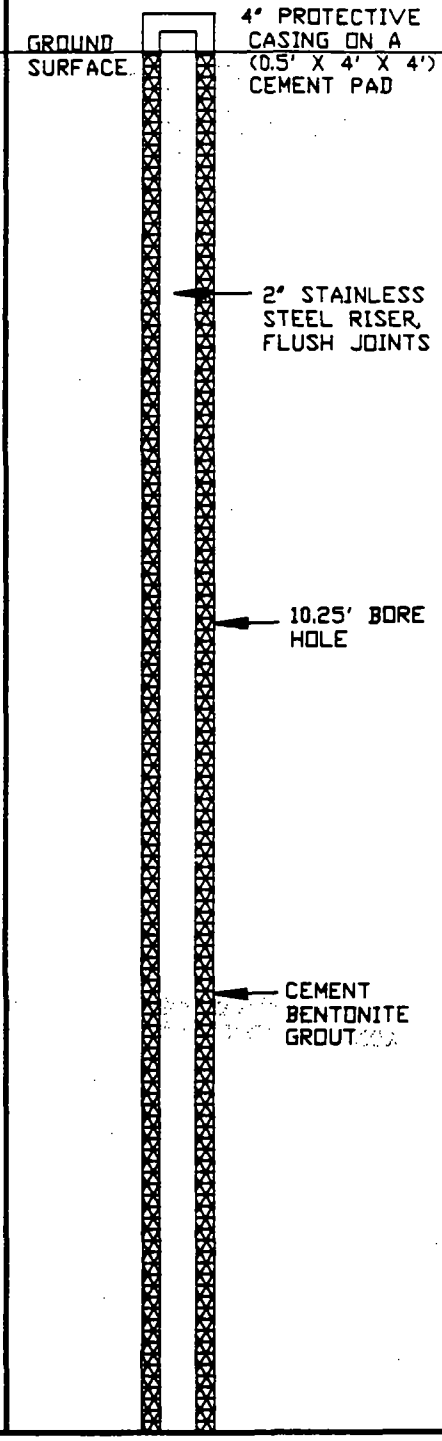
MW-49
MONITORING WELL
COLLIERVILLE SITE
COLLIERVILLE, TN.

DATE: 06/19/91 | DWG NAME: CARRMW3

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
					TOP OF CASING ELEVATION: 361.33' GROUND SURFACE ELEVATION: 358.24'
	SS	83	16	0.0	BROWN-GRAY MOTTLED SILTY CLAY.
10	SS	96	16	0.0	BROWN-GRAY MOTTLED SILTY CLAY WITH A TRACE OF ORGANIC MATTER. SLIGHTLY MOIST.
	SS	96	18	0.0	SAME AS ABOVE.
20	SS	92	24	0.0	BROWN-RED MOTTLED SANDY SILTY CLAY.
	SS	96	26	0.0	BROWN-RED-GRAY MOTTLED SLIGHTLY SANDY CLAY.
30	SS	92	32	0.0	BROWN FINE GRAINED SAND WITH A TRACE OF CLAY.
	SS	83	106	0.0	BROWN FINE TO MEDIUM GRAINED SAND WITH ROCK FRAGMENTS.
40	SS	83	180	0.0	SAME AS ABOVE WITH PEA GRAVEL.
	SS	75	162	0.0	SAME AS ABOVE.
50	SS	75	158	0.0	SAME AS ABOVE.

WELL CONSTRUCTION DETAILS



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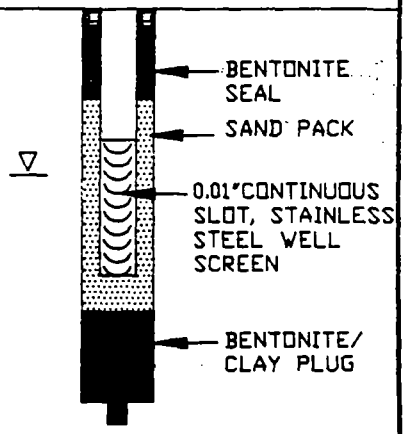
MW-51
MONITORING WELL
COLLIERVILLE SITE
COLLIERVILLE, TN.

DATE: 06/19/91

DWG NAME: CARRMW6

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
	SS	75	160	0.0	SAME AS ABOVE.
60	SS	92	17	0.0	GRAY CLAY WITH MAROON STREAKS INTERSPERSED BETWEEN 0.1' THICK SAND STRINGERS.
	SS	100	14	0.0	SAME AS ABOVE.
	SS	100	11	0.0	SAME AS ABOVE WITH ONLY A TRACE OF SAND.
70					
					BORING TERMINATED AT 64.0' AND WELL SET AT 60.0' ON 3/25/91

WELL CONSTRUCTION DETAILS



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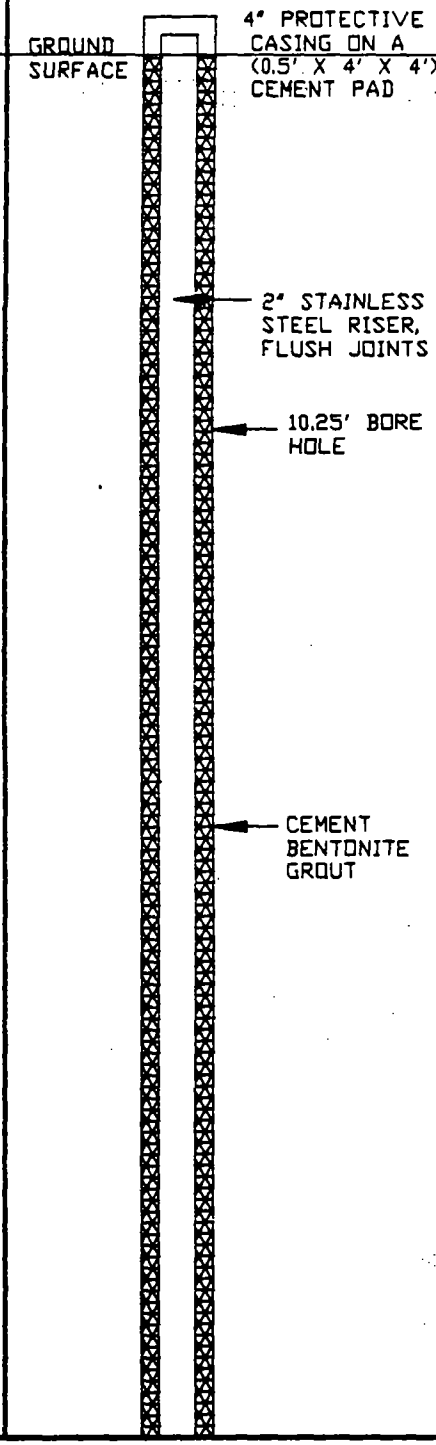
MW-51
MONITORING WELL
COLLIERVILLE SITE
COLLIERVILLE, TN.

DATE: 06/19/91 | DWG NAME: CARRMW6B

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
					TOP OF CASING ELEVATION: 363.49' GROUND SURFACE ELEVATION: 361.32'
	SS	83	32	0.0	MOTTLED BROWN-GRAY SILTY CLAY.
10	SS	83	23	0.0	BROWN SILTY CLAY, SLIGHTLY MOIST.
	SS	83	36	0.0	MOTTLED BROWN-TAN SILTY CLAY.
20	SS	83	33	0.0	BROWN-ORANGE SILTY CLAY WITH LENSES OF SANDY CLAY, DRY, VERY HARD.
	SS	75	44	0.0	MOTTLED RED-ORANGE-GRAY SANDY SILTY CLAY, VERY DRY, VERY HARD.
30	SS	92	26	0.0	BROWN-RED SILTY CLAYEY FINE GRAINED SAND WITH A 0.3' CLAY LENS, DRY, HARD.
	SS	66	27	0.0	BROWN-RED-GRAY SILTY CLAYEY VERY FINE GRAINED SAND WITH A 0.1' CLAY SEAM, DRY.
40	SS	92	98	0.0	BROWN FINE TO MEDIUM GRAINED SAND WITH ABUNDANT GRAVEL AND ROCK FRAGMENTS, DRY.
	SS	87	79	0.0	1.2' OF BROWN FINE TO MEDIUM GRAINED SAND WITH GRAVEL ABOVE A 0.3' WHITE DRY CLAY LAYER. REST OF THE SAMPLE CONSISTS OF BROWN FINE TO MEDIUM GRAINED CLAYEY SAND WITH ROCK FRAGMENTS, DRY.
50	SS	83	103	0.0	BROWN FINE TO MEDIUM GRAINED SAND WITH ROCK FRAGMENTS, VERY DRY.

WELL CONSTRUCTION DETAILS



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5724 SUMMER TREE DR. MEMPHIS, TN. 38134 #(901)372-7962

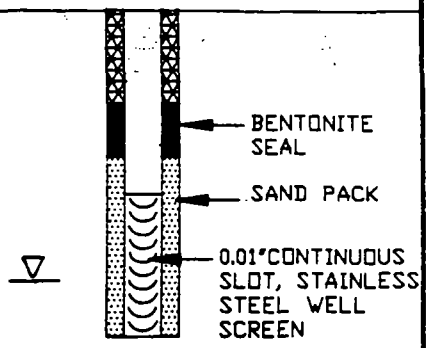
MW-53
MONITORING WELL
COLLIERVILLE SITE
COLLIERVILLE, TN.

DATE: 06/19/91 | DWG NAME: CARRMW5

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
	SS	87	96	0.0	BROWN FINE TO MEDIUM GRAINED SAND WITH PEBBLES AND ROCK FRAGMENTS, SLIGHTLY MOIST.
	SS	83	12	0.0	BROWN MEDIUM GRAINED SAND WITH GRAVEL AND ROCK FRAGMENTS.
60	SS	75	175	0.0	0.75' OF FINE GRAINED WHITE SAND AND ROCK FRAGMENTS FOLLOWED BY BROWN FINE TO MEDIUM GRAINED SAND AND ROCK FRAGMENTS.
	SS	75	15	0.0	0.5' OF BROWN CLAYEY FINE GRAINED SAND AND GRAVEL. GRADES TO MOTTLED BROWN-GRAY SILTY CLAY, SLIGHTLY MOIST.
70					

BORING TERMINATED AT 63.0' AND WELL SET AT 62.5' ON 4/3/91.

WELL CONSTRUCTION DETAILS



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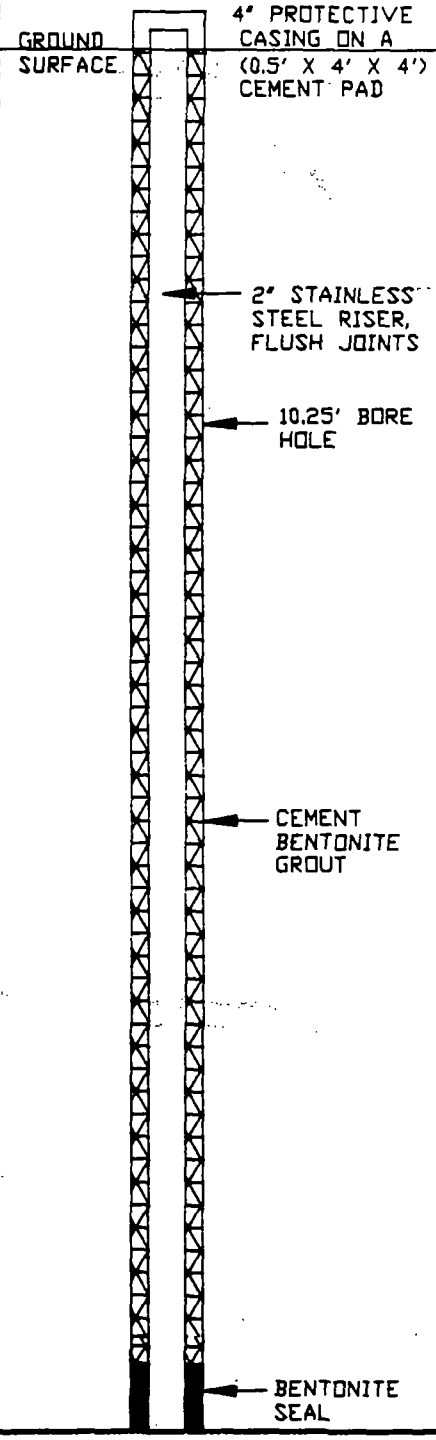
MW-53
MONITORING WELL
COLLIERVILLE SITE
COLLIERVILLE, TN.

DATE: 06/19/91

DWG NAME: CARRMW5B

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
					TOP OF CASING ELEVATION: 354.86' GROUND SURFACE ELEVATION: 351.89'
	SS	92	28	0.0	MOTTLED BROWN-GRAY SILTY CLAY.
10	SS	75	19	0.0	BROWN SILTY CLAY.
	SS	96	19	0.0	BROWN-RED SANDY CLAY WITH IRON CONCRETIONS AND ROCK FRAGMENTS.
20	SS	83	75	0.0	ORANGE-RED-BROWN MEDIUM GRAINED SAND IN THE UPPER 0.66' GRADING TO FINE GRAINED SAND WITH A TRACE OF SILT.
	SS	50	82	0.0	BROWN FINE TO MEDIUM GRAINED SAND.
30	SS	75	19	0.0	SAME AS ABOVE WITH 0.33' OF TIGHT BROWN FAT CLAY AT THE END OF THE SAMPLE.
	SS	79	81	0.0	RED-BROWN FINE TO MEDIUM GRAINED SAND AND WHITISH MEDIUM GRAINED SAND WITH ROCK FRAGMENTS.
40	SS	75	82	0.0	WHITISH-GRAY MEDIUM GRAINED SAND WITH GRAVEL AND ROCK FRAGMENTS.
	SS	83	80	0.0	SAME AS ABOVE.
50	SS	92	80	0.0	SAME AS ABOVE WITH RED STAINING.

WELL CONSTRUCTION DETAILS



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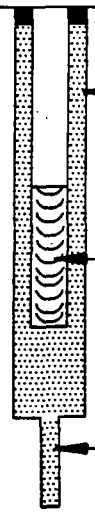
MW-55
MONITORING WELL
COLLIERVILLE SITE
COLLIERVILLE, TN.

DATE: 06/19/91

DWG NAME: CARRMW2

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
	SS	92	133	0.0	SAME AS ABOVE.
60	SS	58	127	0.0	BROWN MEDIUM GRAINED SAND WITH GRAVEL AND ROCK FRAGMENTS.
	SS	96	58	0.0	BROWN MEDIUM GRAINED SAND IN UPER 1.4' GRADING TO FINE TO MEDIUM GRAINED WHITE SAND.
70					BORING TERMINATED AT 65.0' AND WELL SET AT 62.0' ON 4/8/91

WELL CONSTRUCTION DETAILS



MEMPHIS SANDS

JACKSON CLAY IS ABSENT

NOTE: WELL IS DRY

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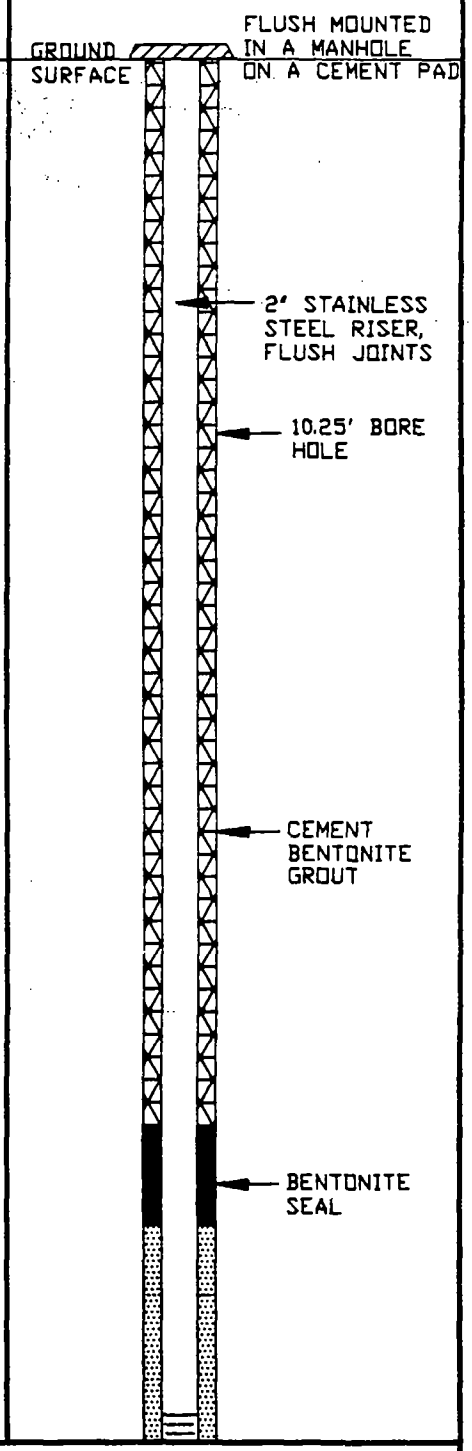
MW-55
MONITORING WELL
COLLIERVILLE SITE
COLLIERVILLE, TN.

DATE: 06/19/91

DWG NAME: CARRMW2B

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
					TOP OF CASING ELEVATION: 359.87' GROUND SURFACE ELEVATION: 359.87'
					PERCHED WATER ZONE ABOVE 3.0'-CONTRIBUTED TO DIFFICULTY IN EMPLACING THE BENTONITE SEAL.
	SS	100	35	0.2	BROWN-GRAY CLAYEY SILT, ORGANIC INCLUSIONS, SLIGHTLY MOIST.
10	SS	75	33	0.2	BROWN SILT, DRY.
	SS	100	75	0.2	RED-BROWN-GARY SILT, DRY, DENSE, ORGANIC INCLUSIONS.
20	SS	100	62	0.2	RED-BROWN-GRAY-TAN SANDY CLAY, SLIGHTLY MOIST DENSE.
	SS	66	54	0.2	BROWN-ORANGE FINE TO MEDIUM GRAINED SILTY SAND, VERY DRY.
30	SS	75	20	0.2	YELLOW-ORANGE-WHITE VERY FINE GRAINED SILTY SANDS.
	SS	50	108	0.2	BROWN-ORANGE FINE TO MEDIUM GRAINED SAND, DRY.
40	SS	75	N/A	0.2	SAME AS ABOVE.
	SS	75	111	0.2	ORANGE-TAN FINE TO MEDIUM GRAINED SAND WITH A TRACE OF GRAVEL.
50	SS	N/A	109	0.2	SAME AS ABOVE, MOIST IN LAST 0.25'.

WELL CONSTRUCTION DETAILS



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5724 SUMMER TREE DR. MEMPHIS, TN. 38134 #(901)372-7962

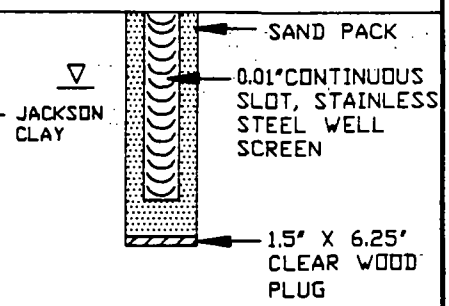
MW-57
MONITORING WELL
COLLIERVILLE SITE
COLLIERVILLE, TN.

DATE: 06/19/91

DWG NAME: CARRMW1

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
	SS	42	20	0.2	FINE TO MEDIUM GRAINED, MOIST, GRAVEL AND SILT, OVERLYING DENSE BROWN CLAY WITH A THIN SILTY SAND STRINGER.
	SS	100	9	N/A	BROWN CLAY, DENSE, WITH GRAY SILT STRINGERS.
60					
					BORING TERMINATED AT 57.0' AND WELL SET AT 55.5' ON 3/29/91.

WELL CONSTRUCTION DETAILS



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5724 SUMMER TREE DR. MEMPHIS, TN. 38134 #(901)372-7962

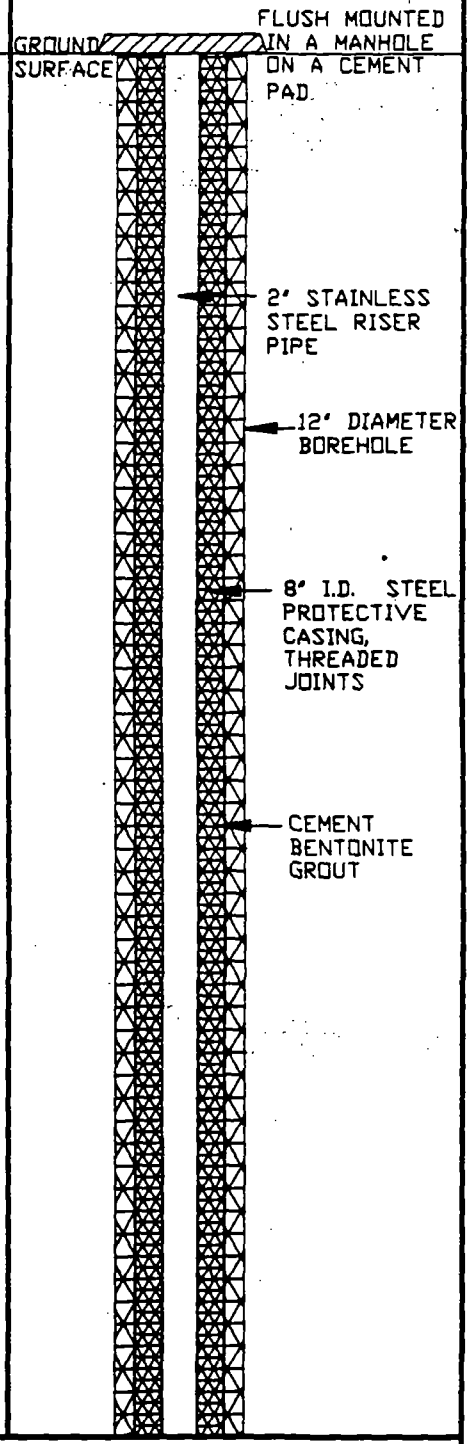
MW-57
MONITORING WELL
COLLIERVILLE SITE
COLLIERVILLE, TN.

DATE: 06/19/91

DWG NAME: CARRMW1B

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
					TOP OF CASING ELEVATION: 359.95' GROUND SURFACE ELEVATION: 359.86'
					PERCHED WATER ZONE ABOVE 3.0'-CONTRIBUTED TO DIFFICULTY IN EMPLACING THE BENTONITE SEAL.
	SS	100	35	0.2	BROWN-GRAY CLAYEY SILT, ORGANIC INCLUSIONS, SLIGHTLY MOIST.
10	SS	75	33	0.2	BROWN SILT, DRY.
	SS	100	75	0.2	RED-BROWN-GARY SILT, DRY, DENSE, ORGANIC INCLUSIONS.
20	SS	100	62	0.2	RED-BROWN-GRAY-TAN SANDY CLAY, SLIGHTLY MOIST DENSE.
	SS	66	54	0.2	BROWN-ORANGE FINE TO MEDIUM GRAINED SILTY SAND, VERY DRY.
30	SS	75	20	0.2	YELLOW-ORANGE-WHITE VERY FINE GRAINED SILTY SANDS.
	SS	50	108	0.2	BROWN-ORANGE FINE TO MEDIUM GRAINED SAND, DRY.
40	SS	75	N/A	0.2	SAME AS ABOVE.
	SS	75	111	0.2	ORANGE-TAN FINE TO MEDIUM GRAINED SAND WITH A TRACE OF GRAVEL.
50	SS	N/A	109	0.2	SAME AS ABOVE, MOIST IN LAST 0.25'.

WELL CONSTRUCTION DETAILS



Environmental and Safety Designs, Inc.

EN SAFE®

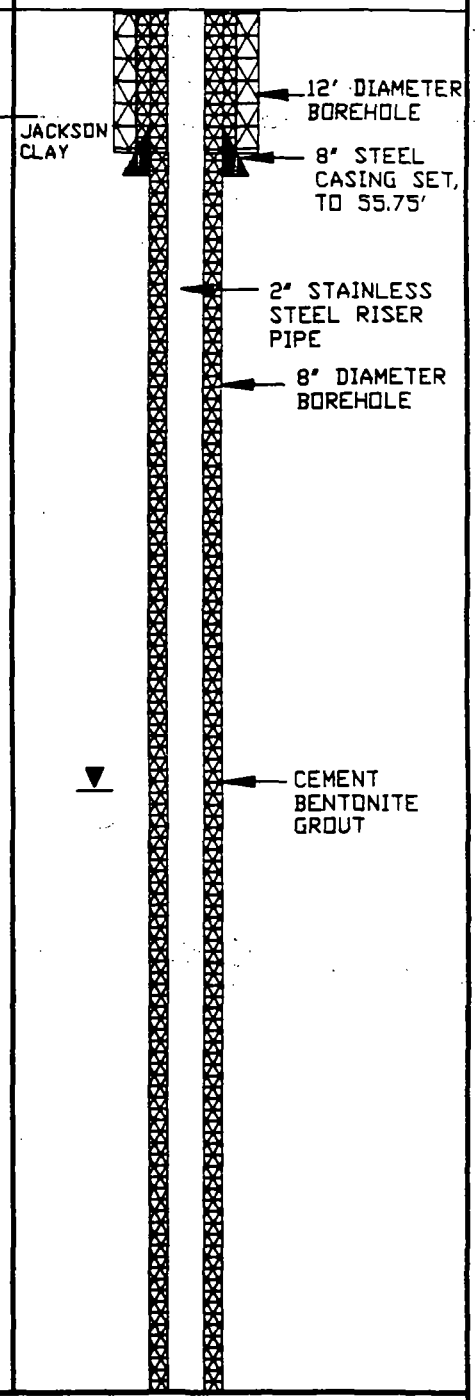
5724 SUMMER TREE DR. MEMPHIS, TN. 38134 ☎(901)372-7962

MW-58
MONITORING WELL
COLLIERVILLE SITE
COLLIERVILLE, TN.

DATE: 06/19/91 | DWG NAME: CARRMW7

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
	SS	42	20	0.2	FINE TO MEDIUM GRAINED, MOIST, GRAVEL AND SILT, OVERLYING DENSE BROWN CLAY WITH A THIN SILTY SAND STRINGER.
	SS	100	9	N/A	BROWN CLAY, DENSE, WITH GRAY SILT STRINGERS.
60	SS	100	-	0.0	MOTTLED BROWN-MAROON TIGHT CLAY WITH ORGANIC MATERIAL.
	SS	100	-	0.0	DARK GRAY STIFF CLAY WITH LIGNITE.
70	SS	100	-	0.0	DARK GREEN STIFF CLAY WITH A 0.25' THICK STRINGER OF VERY FINE GRAINED SAND AT 69.8'
	SS	100	-	0.0	DARK GREEN STIFF CLAY WITH THIN LENSES OF SILT.
80	SS	100	-	0.0	DARK GREEN TIGHT CLAY WITH A TRACE OF SILT.
	SS	100	-	0.0	SAME AS ABOVE.
90	SS	100	-	0.0	SAME AS ABOVE WITH LIGNITE.
	-	-	-	-	NO SAMPLE DUE TO ROCK FRAGMENTS.
100	SS	30	-	0.0	DARK GRAY SILTY TO VERY FINE GRAINED SANDY CLAY.

WELL CONSTRUCTION DETAILS



Environmental and Safety Designs, Inc.

EN SAFE®

5724 SUMMER TREE DR. MEMPHIS, TN. 38134 #(901)372-7962

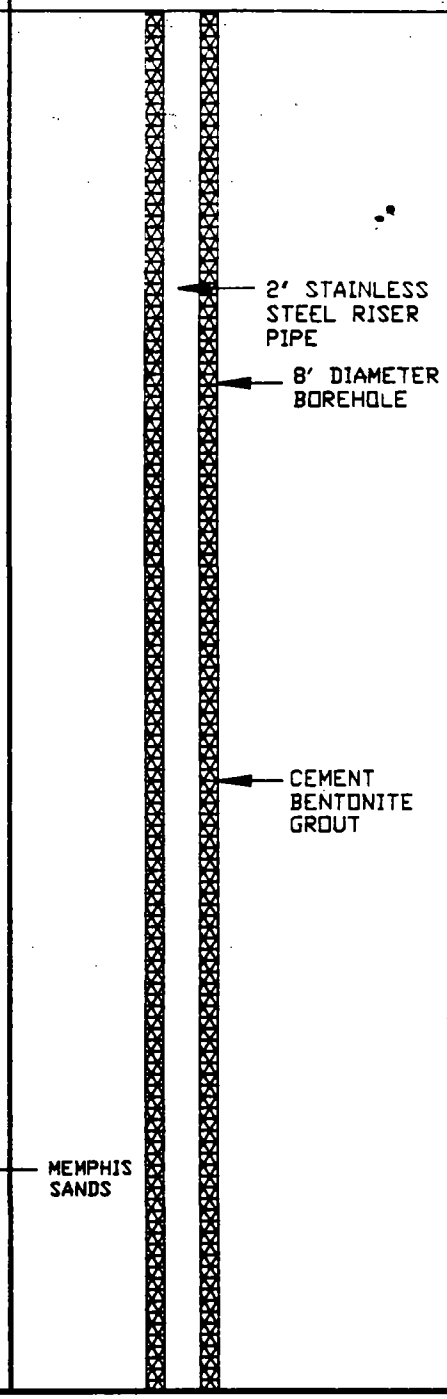
MW-58
MONITORING WELL
COLLIERVILLE SITE
COLLIERVILLE, TN.

DATE: 06/19/91

DWG NAME: CARRMW7B

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
	SS	100	-	0.0	DRAK GRAY SILTY CLAY IN FIRST 0.3' GRADING TO DARK GRAY TIGHT CLAY IN THE NEXT 0.5' AND DARK GRAY SILTY CLAY IN THE REST OF THE SAMPLE.
110	SS	30	-	0.0	DARK GRAY SILTY CLAY WITH ROCK FRAGMENTS.
	SS	100	-	0.0	DARK GRAY SILTY CLAY WITH A TRACE OF SAND AND BROWN ORGANIC MATTER.
120	SS	100	-	0.0	DARK GRAY SILTY CLAY WITH BROWN ORGANIC MATTER.
	SS	100	-	0.0	DARK GRAY SILTY CLAY.
130	SS	100	-	0.0	SAME AS ABOVE.
	SS	100	-	0.0	DARK GRAY SILTY CLAY WITH A TRACE OF ORGANIC MATERIAL.
140	SS	100	-	0.0	DARK GRAY SILTY CLAY.
	-	-	-	-	NO SAMPLE DUE TO ROCK FRAGMENTS. DUE TO CHANGES IN DRILLING PARAMETERS, DRILLER BELIEVES THE TOP OF THE MEMPHIS SAND IS AT 145', BROWN-WHITE FINE TO MEDIUM GRAINED SAND IN THE MUD RETURNS.
150	SS	21	-	0.0	DARK GRAY SILTY CLAY, PROBABLY SLOUGHING FROM ABOVE, TRACE OF SAND.

WELL CONSTRUCTION DETAILS



Environmental and Safety Designs, Inc.

EN SAFE®

5724 SUMMER TREE DR. MEMPHIS, TN. 38134 #(901)372-7962

MW-58
MONITORING WELL
COLLIERVILLE SITE
COLLIERVILLE, TN.

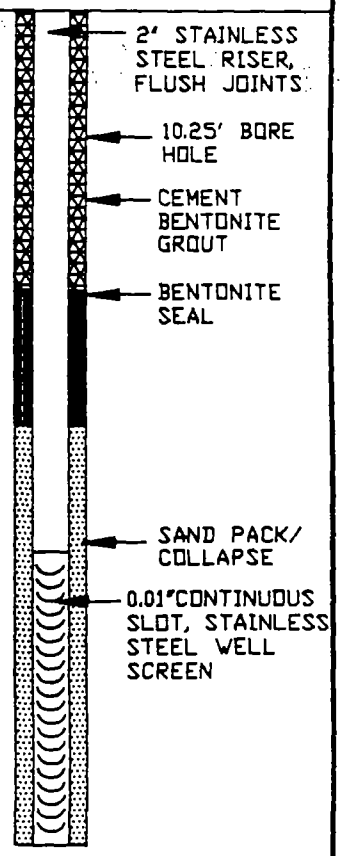
DATE: 5/30/91

DWG NAME: CARRMW7C

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
					BROWN MEDIUM TO COARSE GRAINED SAND IN THE MUD RETURNS.
	SS	16	-	0.0	DARK RED-PINK-BROWN MEDIUM TO COARSE GRAINED SAND WITH SOME DARK GRAY SILTY CLAY COLLAPSE MATERIAL.
160					
	-	-	-	-	UNABLE TO SAMPLE DUE TO ROCK FRAGMENTS. SAND IN THE MUD RETURNS
	SS	4	-	0.0	DARK GRAY SILTY CLAY, TRACE OF SAND, PROBABLY COLLAPSE MATERIAL FROM ABOVE.
170	-	-	-	-	UNABLE TO SAMPLE DUE TO ROCK FRAGMENTS.
	SS	12	-	0.0	SAME AS THE LAST SAMPLE.
180					BROWN MEDIUM TO COARSE GRAINED SAND IN THE MUD RETURNS.

BORING TERMINATED AT 181.0' AND WELL SET AT 181.0' ON 4/22/91.

WELL CONSTRUCTION DETAILS



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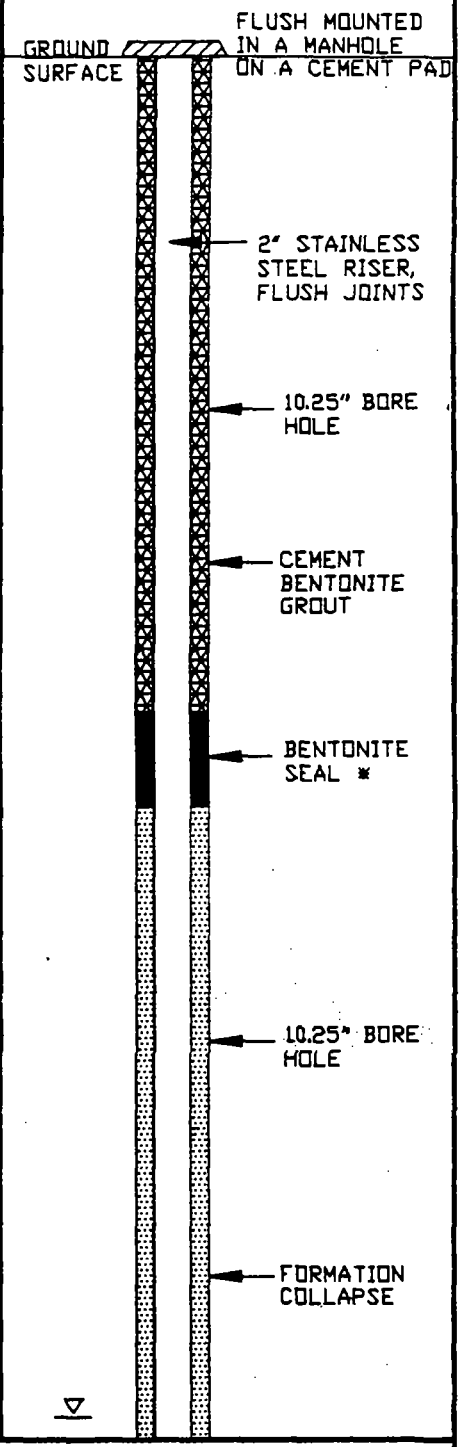
5724 SUMMER TREE DR. MEMPHIS, TN. 38134 ☎(901)372-7962

MW-58
MONITORING WELL
COLLIERVILLE SITE
COLLIERVILLE, TN.

DATE: 06/19/91 | DWG NAME: CARRMW7D

DEPTH (ft)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
					TOP OF CASING ELEVATION: 337.23' GROUND SURFACE ELEVATION: 337.37'
					SAMPLING INFORMATION FROM B-51 - 03/20/91
	SS	100	40	0.0	MOTTLED BROWN SILTY CLAY
10	SS	75	42	0.0	MOTTLED BROWN SILTY CLAY
	SS	92	22	0.0	VERY FINE GRAINED SANDY CLAY
20	SS	83	56	0.0	BROWN CLAYEY SAND
	SS	100	56	0.0	BROWN-RED MEDIUM GRAINED SAND, SPARSE ROCK FRAGMENTS, CLAY SEAMS AND TRACES OF CLAY
30	SS	87	69	0.0	RUST COLORED MEDIUM GRAINED SAND, LAST 0.2' IS WELL SORTED MEDIUM GRAINED TAN SAND
	SS	N/A	71	0.0	MOTTLED WHITE MEDIUM GRAINED SAND GRADING TO RUST COLORED FINE GRAINED SAND, MOIST
40	SS	58	79	0.0	RED-BROWN FINE TO MEDIUM GRAINED SANDS, WET
	SS	79	123	0.0	RED-BROWN FINE TO MEDIUM GRAINED SANDS, WET
50	SS	83	67	0.0	RED-BROWN FINE TO MEDIUM GRAINED SANDS, WET

WELL CONSTRUCTION DETAILS



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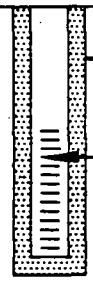
5724 SUMMER TREE DR. MEMPHIS, TN. 38134 (901)372-7962

MW-59
MONITORING WELL
COLLIERVILLE SITE
COLLIERVILLE, TN.

DATE: 06/19/91

DWG NAME: CARRMW8

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS	WELL CONSTRUCTION DETAILS
	SS	83	72	0.0	RED-BROWN FINE TO MEDIUM GRAINED SANDS, WET	 SAND PACK/ FORMATION COLLAPSE 0.010" CONTINUOUS SLOT, STAINLESS STEEL WELL SCREEN
60						
					BORING TERMINATED AT 60.0' AND THE WELL SET AT 59.30' ON 5/30/91	* DUE TO HEAVING SANDS, THE BENTONITE SEAL WAS DISPLACED ABOVE THE ORIGINAL SETTING POINT.
70						
80						
90						
100						

Environmental and Safety Designs, Inc.

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5724 SUMMER TREE DR. MEMPHIS, TN. 38134 #(901)372-7962

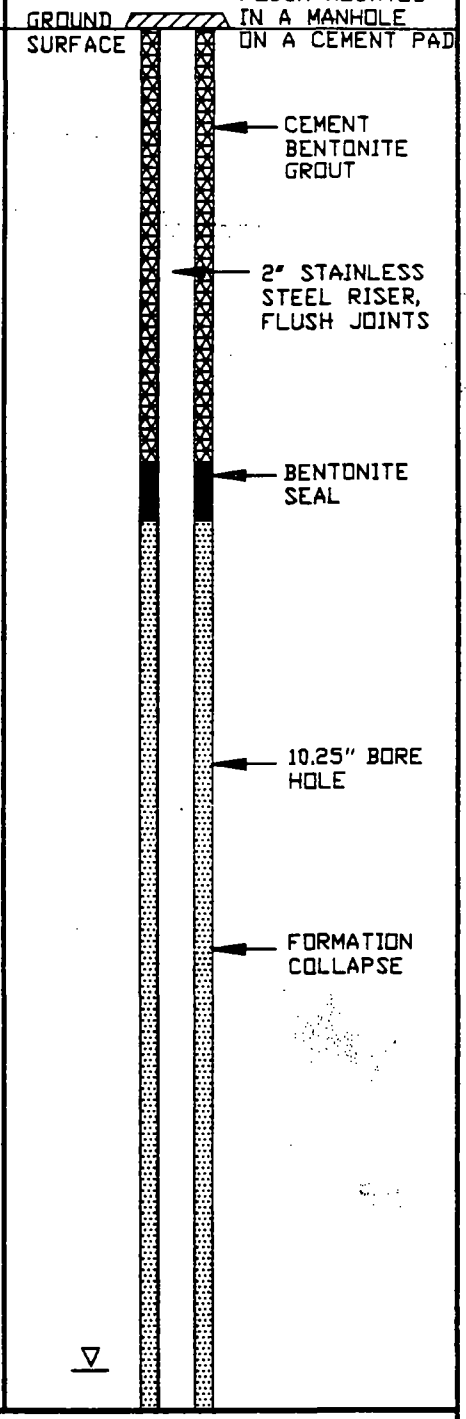
MW-59
MONITORING WELL
COLLIERVILLE SITE
COLLIERVILLE, TN.

DATE: 06/19/91

DWG NAME: CARRMW8B

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
					TOP OF CASING ELEVATION: 336.88' GROUND SURFACE ELEVATION: 337.15'
	SS	50	6	0.0	BROWN-GRAY SILTY CLAY WITH BROWN ORGANIC INCLUSIONS
10	SS	50	14	0.0	BROWN-GRAY SILTY CLAY WITH BROWN ORGANIC INCLUSIONS
	SS	83	17	0.0	BROWN-GRAY CLAYEY SILT WITH VERY FINE GRAINED SAND, MOIST TO WET
20	SS	50	33	0.0	GRAY FINE TO MEDIUM GRAINED SAND GRADING TO BROWN-GRAY MEDIUM TO COARSE SAND WITH GRAVEL, MOIST TO WET
	SS	58	42	0.0	ORANGE-BLACK-GRAY FINE TO MEDIUM GRAINED SAND, WET
30	SS	79	110	0.0	BROWN MEDIUM TO COARSE GRAINED SAND AND GRAVEL WITH BLACK MEDIUM TO COARSE GRAINED SAND, WET
	SS	54	54	0.0	BROWN MEDIUM GRAINED SAND WITH A TRACE OF GRAVEL, WET
40	SS	50	83	0.0	BROWN MEDIUM GRAINED SAND WITH A TRACE OF COARSE SAND, WET
	SS	75	37	0.0	BROWN MEDIUM TO COARSE GRAINED SAND WITH A TRACE OF FINE TO MEDIUM GRAINED SAND, WET
50	SS	54	56	0.0	BROWN MEDIUM TO COARSE SAND AND FINE PEA GRAVEL, BLACK DISCOLORATION, WET

WELL CONSTRUCTION DETAILS



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5724 SUMMER TREE DR. MEMPHIS, TN. 38134 ☎(901)372-7962

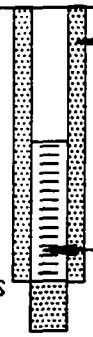
MW-61
MONITORING WELL
COLLIERVILLE SITE
COLLIERVILLE, TN.

DATE: 06/19/91

DWG NAME: CARRMW9

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
	SS	83	61	0.0	BROWN FINE TO MOSTLY MEDIUM GRAINED SAND WITH A TRACE OF PEA GRAVEL, WET
60	SS	100	20	0.0	BROWN COARSE GRAINED SAND WITH PEA GRAVEL AND ROCK FRAGMENTS, WHITE-YELLOW CLAYEY SAND IN THE LAST 0.2'
	SS	100	20	0.0	WHITE-YELLOW FINE TO MEDIUM GRAINED SAND WITH RED STAINING, THIN DISCONTINUOUS LENSES OF WHITE CLAY AND BLACK DISCOLORATION
70					BORING TERMINATED AT 62.0' AND WELL SET AT 60.27' ON 5/30/91
80					
90					
100					

WELL CONSTRUCTION DETAILS



JACKSON CLAY IS ABSENT

* DUE TO HEAVING SANDS, THE BENTONITE SEAL WAS DISPLACED ABOVE THE ORIGINAL SETTING POINT

Environmental and Safety Designs, Inc.

EN SAFE®

5724 SUMMER TREE DR. MEMPHIS, TN. 38134 #(901)372-7962

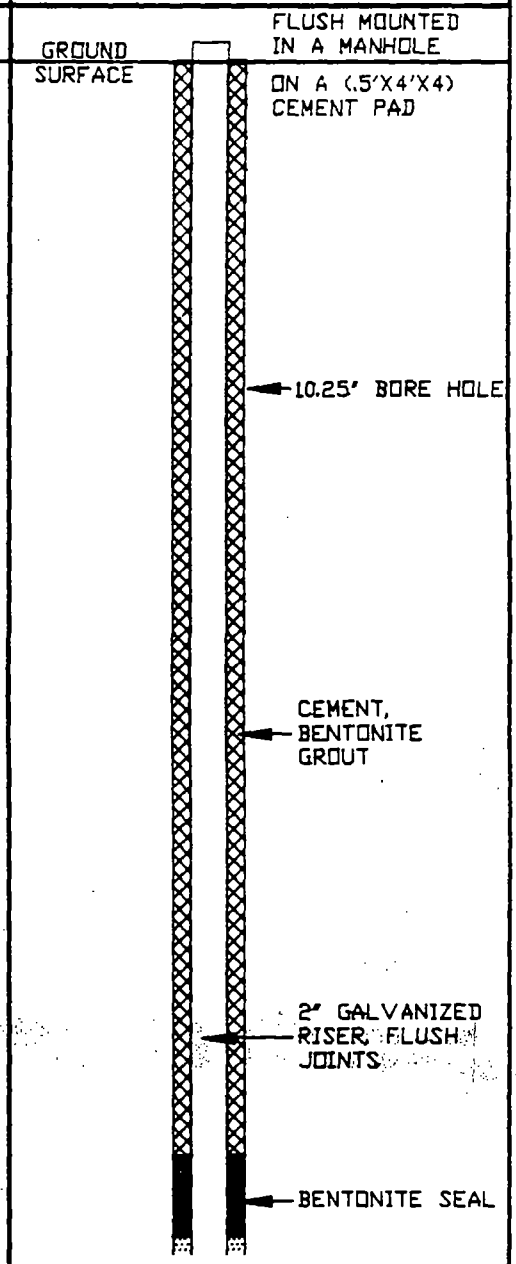
MW-61
MONITORING WELL
COLLIERVILLE SITE
COLLIERVILLE, TN.

DATE: 06/19/91

DWG NAME: CARRMW98

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
5	SS	83	10	0.2	BROWN-GRAY MOTTLED SILTY CLAY W/ IRON STAINS, CEMENT CHIPS AND WIRE.
10	SS	90	13	0.2	BROWN-ORANGE MOTTLED SILTY CLAY W/ ORGANIC STAINS.
15	SS	90	16	0.2	SAME W/ TRACE OF PEBBLES & ROCK FRAGMENTS.
20	SS	90	22	0.2	BROWN-RED MOTTLED SILTY CLAY W/ IRON & ORGANIC STAINS, PEBBLES & A TRACE OF SAND.
25	SS	95	76	0.2	BROWN-GRAY SILTY CLAY, WET, GRADING TO SILTY SAND W/ AN INTERBEDDED CLAY STREAK BECOMING BROWN MEDIUM TO COARSE SAND W/ FINE GRAY CLAY LAYERS.
30	SS	83	75	0.2	WHITE FINE GRAINED SAND W/ ORGANIC STAINS & A FEW THIN CLAY STREAKS.
35	SS	80	67	0.2	WHITE-BROWN/RED MOTTLED SILTY FINE GRAINED SAND W/ A FEW THIN CLAY STREAKS.
40	SS	90	67	0.2	WHITE FINE TO MEDIUM GRAINED SAND.
45	SS	90	42	0.2	SAME W/ A TRACE OF CLAY.
50	SS	90	26	0.2	ORANGE/YELLOW MEDIUM TO COARSE GRAINED SAND W/ A THIN STRINGER OF RED CLAY.
55	SS	75	60	0.2	SAME W/ SLIGHTLY HIGHER PERCENTAGES OF FINE GRAINED SAND & A FEW THIN CLAY STREAKS.
60	SS	90	86	0.2	BROWN-WHITE/RED MOTTLED FINE TO MEDIUM GRAINED SAND W/ A FEW THIN CLAY LAMINATIONS.

WELL CONSTRUCTION DETAILS



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5724 SUMMERTREES DR. MEMPHIS, TN. 38134 (901)372-7962

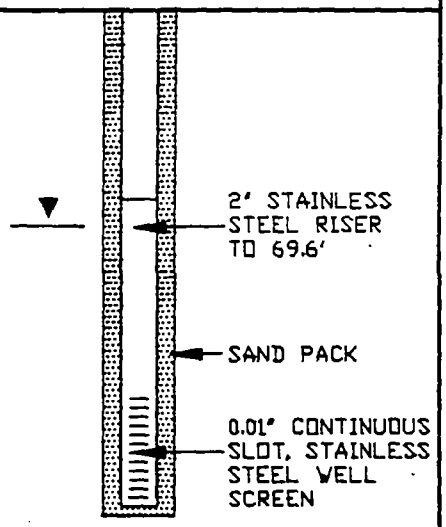
CMW-001

COLLIERVILLE SITE
COLLIERVILLE, TN.

DWG DATE: 02/19/91 | DWG NAME: CARRW1

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
65	SS	87	90	0.2	WHITE-BROWN FINE TO MEDIUM GRAINED SAND.
70	SS	83	86	0.2	SAME WITH A THIN CLAY STREAK.
75	SS	90	15	0.2	BROWN-WHITE/GRAY FINE TO MEDIUM GRAINED CLAYEY SAND W/ A THIN GRAY-RED CLAY STREAK. MOIST BELOW 74.5 FT.
80	SS	90	16	0.2	LIGHT GRAY SILTY CLAY MIXED W/ FINE TO MEDIUM GRAINED SAND IN ALTERNATING THIN LAMINATIONS. VERY MOIST TO WET.
85	SS	95	8	0.2	SAME, WET.
					BORING TERMINATED @ 85.0 FT. & WELL SET ON 8/25/90.

WELL CONSTRUCTION DETAILS



NOTE: THIS WELL IS IN THE RECHARGE AREA OF THE MEMPHIS SANDS.

Environmental and Safety Designs, Inc.
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5724 SUMMERTREES DR. MEMPHIS, TN. 38134 (901)372-7962

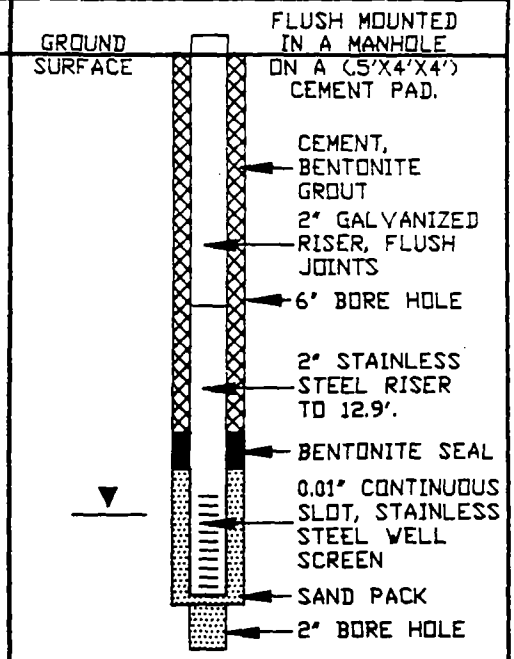
CMW-001

COLLIERVILLE SITE
COLLIERVILLE, TN.

DWG DATE: 02/19/91 | DWG NAME: CARRW1B

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
					NOTE: SPLIT SPOON SAMPLES TAKEN @ 10.0 FT. INTERVALS BEFORE CLAY OR WATER.
5	SS	83	19	0.2	BROWN-GRAY MOTTLED SILTY CLAY W/ ABUNDANT PEBBLES & ROCK FRAGMENTS.
10					CUTTINGS: IRON NODULES, PINK CLAY, GRAY-RED CLAY, BROWN FINE SAND
15					
20	SS	50	112	0.2	BROWN-RED INTERLAMINATED FINE TO MEDIUM GRAINED SAND.
25	SS	75	24	0.2	BROWN-RED MEDIUM TO COARSE SAND, WET.
30	SS	95	28	0.2	BROWN-RED COARSE SAND, WET.
					BORING TERMINATED @ 30.0' AND WELL SET @ 27.9' ON 8/23/90.
35					
40					
45					
50					
55					
60					

WELL CONSTRUCTION DETAILS



NOTE: THIS WELL IS IN THE RECHARGE AREA OF THE MEMPHIS SANDS.

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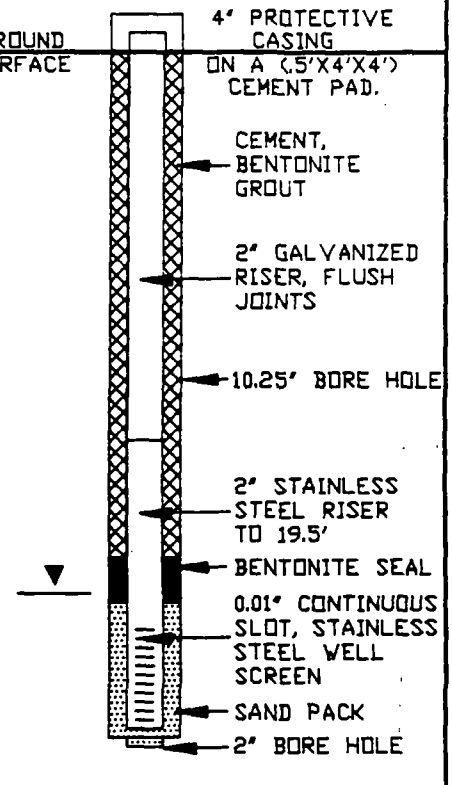
CMW-002

COLLIERVILLE SITE
COLLIERVILLE, TN.

DWG DATE: 02/19/91 | DWG NAME: CARRW2

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
					NOTE: SPLIT SPOON SAMPLES TAKEN @ 10.0 FT. INTERVALS BEFORE CLAY OR WATER.
					CUTTINGS: DARK BROWN TO BROWN SILTY CLAY
5					
	SS	90	12	0.2	DARK BROWN-GRAY MOTTLED CLAYEY SILT W/ A THICK GRAY SILTY CLAY LAYER.
10					
15					
	SS	87	36	0.2	BROWN-GRAY/RED CLAYEY SAND & GRAVEL W/ BLACK STAINING.
20					
					CUTTINGS: BROWN SILTY SAND BROWN SILTY CLAYEY SAND
25					
	SS	90	27	0.2	LIGHT BROWN FINE GRAINED SAND, MOIST-WET.
30					
	SS	95	25	0.2	LIGHT BROWN FINE GRAINED SAND, WET.
35					
					BORING TERMINATED @ 35.0' AND WELL SET @ 34.5' ON 8/23/90.
40					
45					
50					
55					
60					

WELL CONSTRUCTION DETAILS



NOTE: THIS WELL IS IN THE RECHARGE AREA OF THE MEMPHIS SANDS

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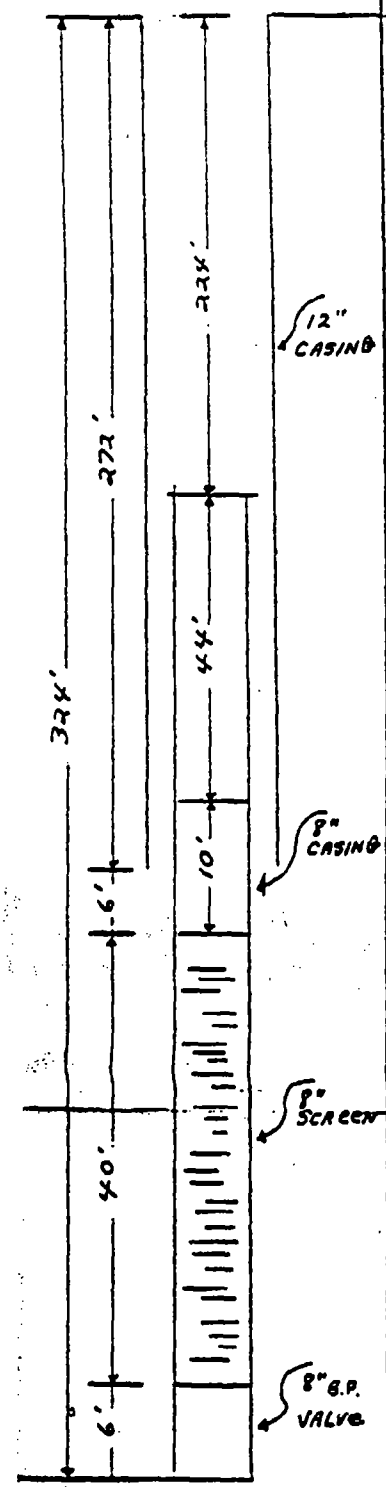
CMW-003

COLLIERVILLE SITE
COLLIERVILLE, TN.

DWG DATE: 02/19/91 | DWG NAME: CARRW3

ALL MEASUREMENTS TAKEN FROM (GROUND) (TOP OF FOUNDATION) (TOP OF CASING) (TOP BASE PLATE)

DRAWING OF THE WELL



WELL DATA

STARTED WELL 8-7- 1967 AND COMPLETED 8-24- 1967
TOTAL DEPTH 324' ELEVATION _____ STATIC WATER LEVEL 72'
LENGTH SURFACE CASING _____ SIZE _____ THICKNESS _____
CEMENTED WITH _____ SACKS CEMENT TYPE PACKER _____
LENGTH WELL CASING 272' SIZE 12" WEIGHT welded
CEMENTED WITH 250 SACKS CEMENT TYPE PACKER _____
INNER CASING LENGTH 54' SIZE 8" WEIGHT welded
WITH x fish GUIDES LOCATED 5' top 5' bottom TYPE BACKOFF LHFFI
LEAD SEAL none BACKPRESSURE VALVE Yes GUIDE _____
WELL STRAINER MAKE Layne SIZE 8" LENGTH 40' OPENING #7 1/
TYPE MATERIAL stainless WITH _____ CONNECTIONS
SIZE HOLE DRILLED FOR SURFACE CASING _____ WITH _____
SIZE HOLE DRILLED FOR WELL CASING 34 WITH 12" underreamer
SIZE HOLE DRILLED FOR STRAINER _____ WITH _____
YARDS OF GRAVEL USED 16 HOW PLACED 2' line
HOW WAS WELL DEVELOPED _____
NOTES _____
RIG USED _____ DRILLER R. E. Heriot

PUMP RECORD

SERIAL NUMBER 57942 MAKE Layne FOUNDATION _____
LENGTH COLUMN 130' SIZE 8" x 1-1/2" x 1" TYPE oil @ 10/20 LENGTHS
BOWL SIZE 10" TYPE RKHC STAGES 4 MATERIAL IMPELLER bronze
MATERIAL BOWL bronze WITH open PORTS AND _____ SHAFT
SUCTION SIZE 6" LENGTH 20' SUCTION STRAINER no
IS PUMP SEALED HOW no WHERE _____ WITH WHAT _____
LUBRICATOR TYPE Oil SIZE 1 Qt. VOLTAGE 220/440
LENGTH OF AIRLINE 134' SIZE 1/4" TYPE MATERIAL copper tubing
AIR RELEASE VALVE TYPE _____ SIZE _____
SIZE SURFACE DISCHARGE 8" TYPE flanged DAYTON COUPLING _____
PRESSURE GUAGE _____ SPEED _____
NOTES _____
RIG USED TO SET PUMP _____ INSTALLER C. M. Jenkins
DATE PUMP INSTALLED 9-12- 1967 DATE IN OPERATION _____ 19__

MOTOR

MAKE U.S. HP 30 FRAME A326UP PHASE 3 CYCLE 60 VOLT. 220/440
SPEED 1800 MODEL Style RU SERIAL NUMBER 9-1776-00-267
TOP BEARING _____ BOTTOM BEARING _____ RATCHET _____
STARTER _____ PRESSURE SWITCH _____ FLOAT _____

GEAR

MAKE none MODEL _____ SIZE _____ RATIO _____ NO. _____
SIZE PULLEY _____ TYPE MOTOR FRAME _____

ENGINE

MAKE none MODEL _____ HP _____ SERIAL NUMBER _____
SPEED _____ SIZE PULLEY _____ FOUNDATION _____
TYPE FUEL TANK _____ MAKE MAG _____ NO. _____
MAKE STARTER _____ NO _____ TYPE FUEL _____
MAKE FLEXIBLE SHAFT _____ SIZE _____ LENGTH _____ BELT LENGTH _____

GENERAL

PURPOSE FOR WHICH THIS WATER IS USED _____
TEMPERATURE _____ IS WATER CLEAR _____ CAPACITY _____
SAND _____ HARDNESS _____ PH _____ IRON _____ NaCl _____
TYPE TREATMENT USED _____
IS THERE A DERRICK OVER THE WELL _____ HEIGHT _____ TYPE _____
CAN TRUCK OR RIG EASILY GET TO WELL _____
PUMP HOUSE _____ SIZE HATCH _____

CONTRACT NO. 11476 - 100

OUR WELL NO. 2 THEIR WELL NO. _____ IN TEST HOLE NO. 2

LOCATION OF THE WELL N.W. Corner - Day & Night Plant

INSTALLED FOR Town of Collierville

ADDRESS CITY Collierville COUNTY Shelby STATE Tenn

YEAR 1967

.LL BLAKE AND ASSOCIATES, INC.

October 1987

Memphis, Tennessee

REPORT OF Permeability Tests with Backpressure

FOR Ensafe - Paul Stoddard

JOB 87-08130; Carrier Plant Waste Spill Investigation

SAMPLE FROM Shelby Tube Samples

SOURCE OF MATERIAL

Boring Number	Sample Number	Depth, Feet	Dry Density (pcf)	Moisture Content (%)	Coefficient of Permeability (cm/sec)
MW-3	S-1	53.0'-55.0'	108.3	20.9	1.1×10^{-7}
MW-5	S-1	35.0'-37.0'	97.6	28.9	2.5×10^{-8}

REMARKS:

CC ES TO:

LABORATORY NO.

LL BLAKE AND ASSOCIATES, INC.

October 1987

Memphis, Tennessee

REPORT OF Atterberg Limits & #200 Wash

FOR Ensafe - Paul Stoddard

JOB 87-08130; Carrier Plant Waste Spill Investigation

SAMPLE FROM Shelby Tube Sample

SOURCE OF MATERIAL

Boring Number	Sample Number	Depth, Feet	Liquid Limit	Plasitc Limit	Plasticity Index	Passing #200 (%)	Classification *U.S.C.S.
MW-3	S-1	53.0-55.0	55	20	35	74.4	CH
MW-5	S-1	35.0-37.0	57	18	39	80.9	CH

EMARKS: *Unified Soil Classification System

C S TO:

ABORATORY NO.

.L. BLAKE AND ASSOCIATES, INC.

November 1987

Memphis, Tennessee

REPORT OF Atterberg Limits & #200 Wash

FOR Carrier

JOB 87-10176 ; Carrier Phase III

SAMPLE FROM Shelby Tube Samples

SOURCE OF MATERIAL

Boring Number	Sample Number	Depth Feet	Location Tube	Liquid Limit	Plastic Limit	Plasticity Index	Passing #200 (%)	Classificat * U.S.C.S.
21	S-1	20.0 - 22.0	Bottom	43	17	26	76.6	CL
[illegible]	S-2	45.0 - 47.0	Bottom	57	14	43	73.1	CH
24	S-1	55.0 - 57.0	Top	29	15	14	69.2	CL
26	S-1	43.5 - 45.5	Top	38	16	22	79.4	CL
27	S-1	55.0 - 57.0	Bottom	49	15	34	77.5	CL

EMARKS: * Unified Soil Classification System

TO: Test samples taken from clay areas in tube.

ABORATORY NO.

_L. BLAKE AND ASSOCIATES, INC.

November 1987

Memphis, Tennessee

REPORT OF Unit Weight & Moisture Content

FOR Carrier

JOB 87-10176 ; Carrier Phase III

SAMPLE FROM Shelby Tube Samples

SOURCE OF MATERIAL

Boring Number	Sample Number	Depth Feet	Moisture (%)	Wet Density (PCF)	Dry Density (PCF)	PPR (TSF)	Torvane (TSF)
21	S-1	20.0 - 22.0	19.1	121.0	101.6	2.80	1.00+
21	S-2	45.0 - 47.0	27.6	124.2	97.3	2.40	1.00+
24	S-1	55.0 - 57.0	23.0	129.5	105.2	0.60	0.20
2[illegible]	S-1	43.5 - 45.5	27.1	125.1	98.5	0.50	0.30
27	S-1	55.0 - 57.0	27.0	119.5	94.1	1.40	0.50

REMARKS: Page 2 of 3

C[illegible]S TO:

LABORATORY NO.

_L BLAKE AND ASSOCIATES, INC.

November 1987

Memphis, Tennessee

REPORT OF Permeability Test with Backpressure

FOR Carrier

JOB 87-10176 ; Carrier Phase III

SAMPLE FROM Shelby Tube Samples

SOURCE OF MATERIAL

Boring Number	Sample Number	Depth Feet	Location in Tube	Coefficient of Permeability (cm/sec)
21	S-1	20.0 - 22.0	Bottom	1.3×10^{-7}
21	S-2	45.0 - 47.0	Bottom	6.7×10^{-8}
24	S-1	55.0 - 57.0	Top	4.4×10^{-7}
26	S-1	43.5 - 45.5	Top	1.4×10^{-7}
27	S-1	55.0 - 57.0	Bottom	9.7×10^{-8}

REMARKS:

Specimens taken from clay areas in tube.

CC S TO: Page 3 of 3

_ABORATORY NO.

Professional Service Industries, Inc.

January 5, 1989

Ensafe
Post Office Box 34207
Memphis, Tennessee 38134

Attention: Mr. Paul Stoddard

Re: Results of Permeability Tests
Carrier Corporation
Collierville, Tennessee
PSI File No. 502-75210

Gentlemen:

Professional Service Industries, Inc. is pleased to submit the results of permeability testing for the above referenced project. A copy of the results is attached.

We appreciate the opportunity to have provided you with our geotechnical engineering services, and look forward to participation in the next phase of this project. If you have any questions concerning these results or if we may be of futher service in any manner, please contact our office.

Very truly yours,

PROFESSIONAL SERVICE INDUSTRIES, INC.

Raj Krishnasamy
Project Engineer

4161 Ridgemoor Avenue • Memphis, TN 38118 • Phone: 901/365-1802

ROJECT: Carrier

SUBJECT: Permeability

JOB: 502-75210

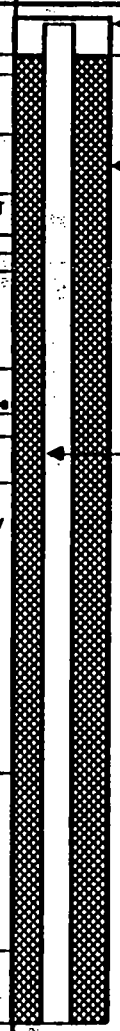
Boring #	Depth (ft)	Dry Density (pcf)	m/c	LL	PI	k (cm/s)
B-37	13	113.2	13	36	14	-
B-37	30.5	120.2	13	sandy		-
B-37	48	89.7	24	48	28	1.03×10^{-8}
B-38	15	-	19	36	11	2.81×10^{-8}
B-39	11	114.6	16	33	20	1.55×10^{-8}
B-39	26	106.4	20	38	18	2.71×10^{-8}

APPENDIX F

WELL CONSTRUCTION LOGS, GAMMA LOGS

Depth (Feet)	Sample Location	% Recovery	Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
					Top of casing elevation = 343.62 feet (msl) Ground surface elevation = 341.11 feet (msl)
0					Asphalt and dark brown SAND and GRAVEL
					Mottled tan and light gray CLAYEY SILT; moist; small red - brown blebs; gray bedding fractures
					Light brown SILTY CLAY with blebs; moist; soft
					Light gray and mottled light gray and brown CLAYEY SILT
10					Mottled dark and light brown SILTY CLAY
					Brown CLAY, trace silt; moist
					Brown CLAYEY SILT; moist
					some orange staining; many dark brown blebs
					Mottled brown and tan SILTY CLAY; orange - brown oxidation along apparent vertical fracture zone; moist; blebs
					Light gray CLAYEY SILT; stained dark brown
20					Light gray SANDY CLAY; moist; brown staining
					Gray SILTY SAND trace clay; moist
					becomes stained brown with coarser sand and cherty pea gravel
					becomes less well graded; some orange staining
					thin layer of black staining at 28.5 feet
30					becomes very moist
					yellow - orange and dark brown staining at 34.5 feet
					Orange to light gray, medium grained SAND, trace gravel and silt
40					
					Light brown to light gray CLAY with interbedded silts and thin light gray sandy silt laminae
50					

WELL CONSTRUCTION DETAILS



Log continued on page 2

GAMMA RAY LOG

Counts per second/ Division = 5	Casing type: 2" Stainless Steel
Displacement = 0	Top of log = Ground surface
Rate of logging = 15 ft/min.	Date logged: 5 - 5 - 88

Depth (feet)	Relative % Clay	NOTES
0		Ground surface
	45	
	58	
10	67	
	25	
20	22	Top of sand
	12	
30	11	
	13	
40	14	
	28	Top of clay
50		

CLAYS AND SILTS

SANDS

CLAY

*Based on information provided by R.F. Weston, Inc., and comparison with adjacent borings.

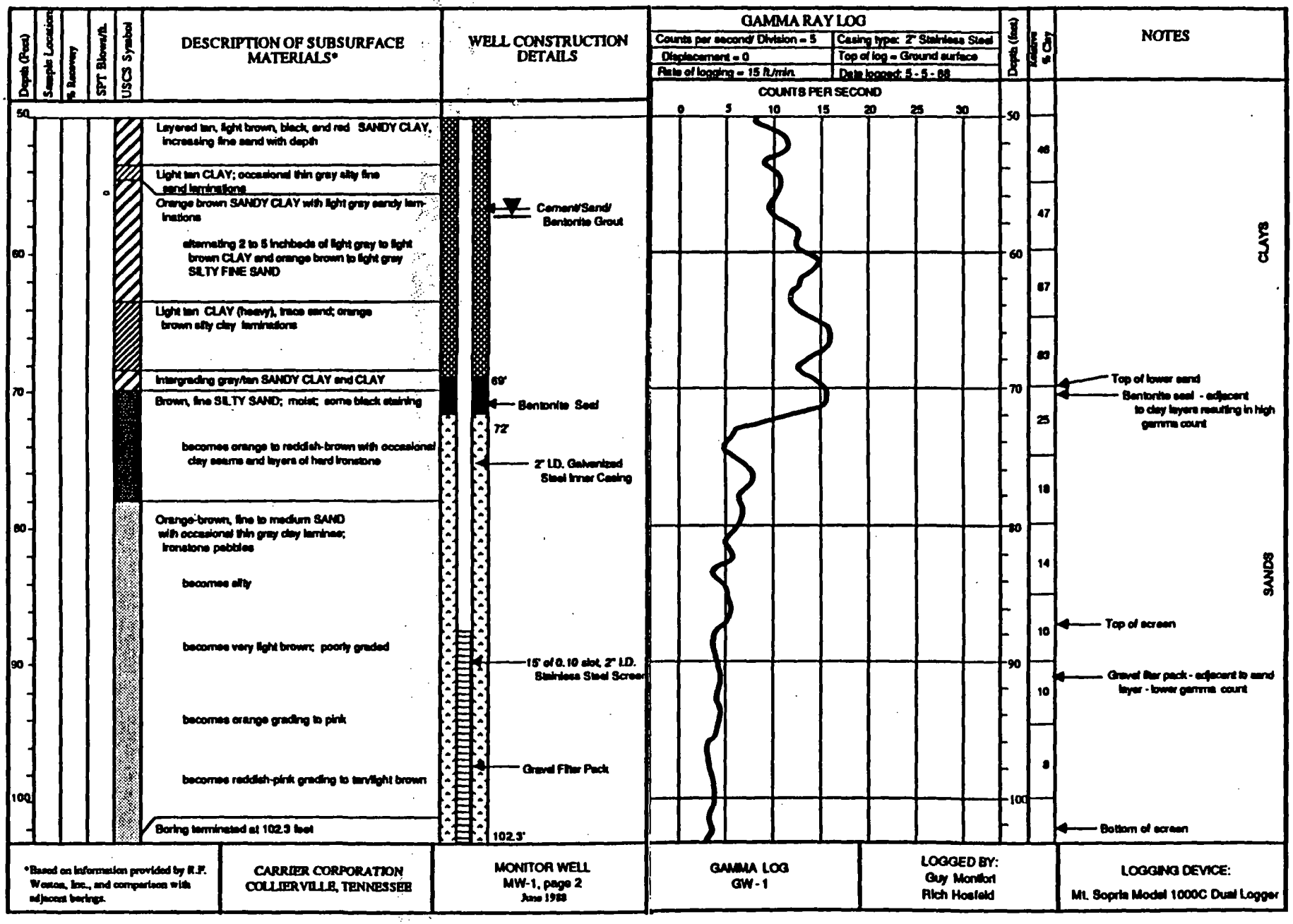
CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

MONITOR WELL
MW-1, page 1
June1988

GAMMA LOG
GW - 1

LOGGED BY:
Guy Montori
Rich Hosfeld

LOGGING DEVICE:
Mt. Sopris Model 1000C Dual Logger



*Based on information provided by R.F. Weston, Inc., and comparison with adjacent borings.

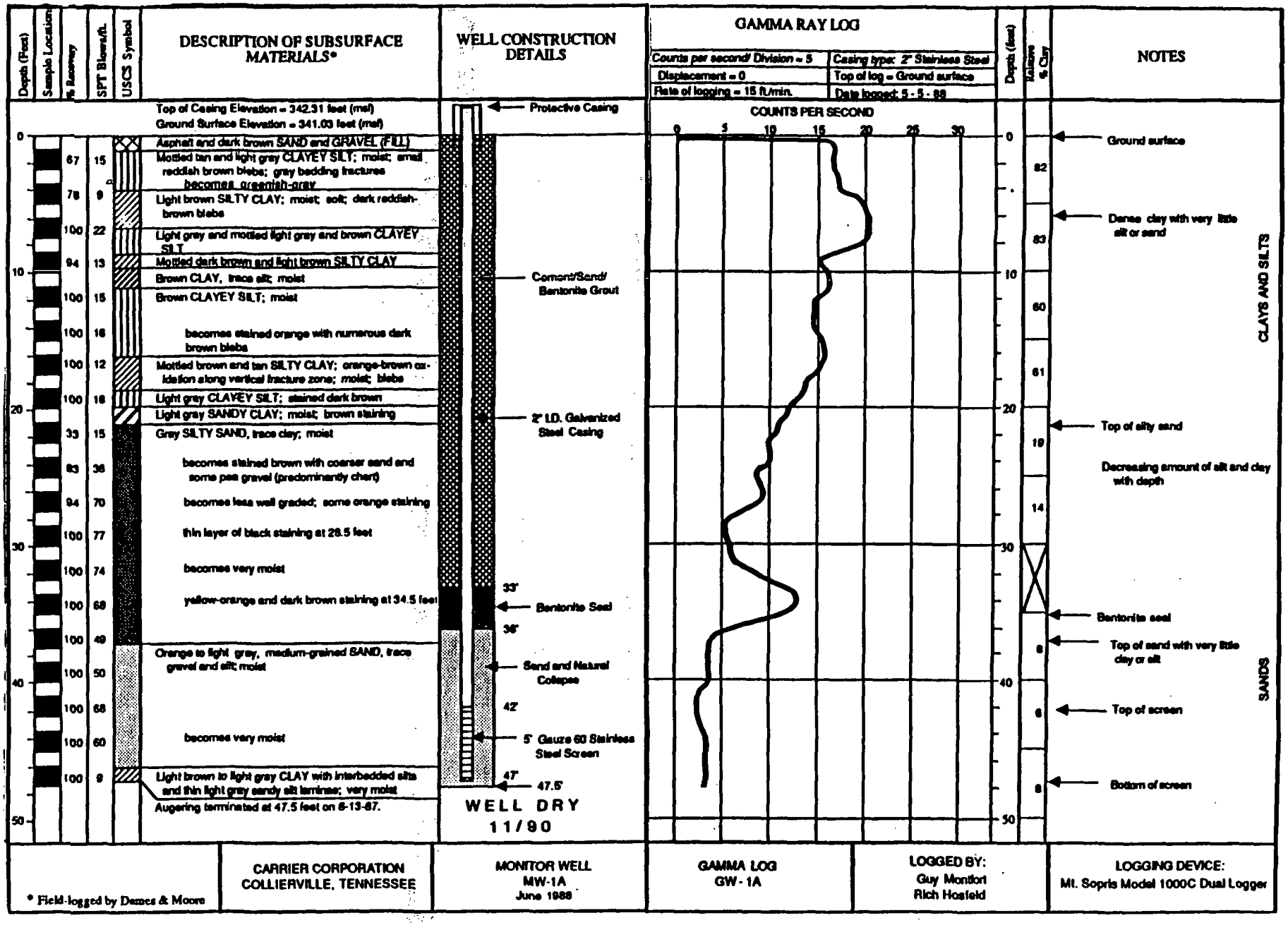
CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

MONITOR WELL
MW-1, page 2
June 1988

GAMMA LOG
GW - 1

LOGGED BY:
Guy Monfort
Rich Hosfeld

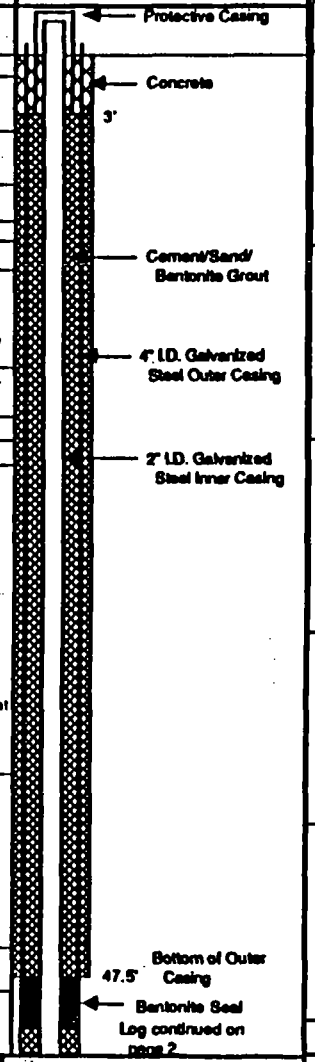
LOGGING DEVICE:
Mt. Sopris Model 1000C Dual Logger


Depth (Feet)
Sample Location
% Recovery
SPT Blows/ft.
USCS Symbol
DESCRIPTION OF SUBSURFACE MATERIALS*
Top of Casing Elevation = 342.31 feet (msl)
Ground Surface Elevation = 341.03 feet (msl)
Asphalt and dark brown SAND and GRAVEL (FILL)
Mottled tan and light gray CLAYEY SILT; moist; small reddish brown blebs; gray bedding fractures becomes greenish-gray
Light brown SILTY CLAY; moist; soft; dark reddish-brown blebs
Light gray and mottled light gray and brown CLAYEY SILT
Mottled dark brown and light brown SILTY CLAY
Brown CLAY, trace silt; moist
Brown CLAYEY SILT; moist
becomes stained orange with numerous dark brown blebs
Mottled brown and tan SILTY CLAY; orange-brown oxidation along vertical fracture zone; moist; blebs
Light gray CLAYEY SILT; stained dark brown
Light gray SANDY CLAY; moist; brown staining
Gray SILTY SAND, trace clay; moist
becomes stained brown with coarser sand and some pea gravel (predominantly chert)
becomes less well graded; some orange staining
thin layer of black staining at 28.5 feet
becomes very moist
yellow-orange and dark brown staining at 34.5 feet
Orange to light gray, medium-grained SAND, trace gravel and silt; moist
becomes very moist
Light brown to light gray CLAY with interbedded silts and thin light gray sandy silt laminae; very moist
Augering terminated at 47.5 feet on 8-13-87.
WELL CONSTRUCTION DETAILS
Protective Casing
Cement/Sand/ Bentonite Grout
2" I.D. Galvanized Steel Casing
33'
Bentonite Seal
36'
Sand and Natural Collapse
42'
5' Gauze 60 Stainless Steel Screen
47'
47.5'
WELL DRY
11/90
GAMMA RAY LOG
Counts per second/ Division = 5
Casing type: 2" Stainless Steel
Displacement = 0
Top of log = Ground surface
Rate of logging = 15 ft/min.
Date logged: 5 - 5 - 89
COUNTS PER SECOND
Depth (feet)
% Clay
NOTES
Ground surface
Dense clay with very little silt or sand
Top of silty sand
Decreasing amount of silt and clay with depth
Bentonite seal
Top of sand with very little clay or silt
Top of screen
Bottom of screen
CLAYS AND SILTS
SANDS
* Field-logged by Dames & Moore
CARRIER CORPORATION
COLLIERVILLE, TENNESSEE
MONITOR WELL
MW-1A
June 1988
GAMMA LOG
GW - 1A
LOGGED BY:
Guy Montfort
Rich Hosfeld
LOGGING DEVICE:
Mt. Sopris Model 1000C Dual Logger

Depth (Feet)	Sample Location	% Recovery	SPT Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
					Top of casing elevation = 343.50 feet (msl) Ground surface elevation = 341.11 feet (msl)
0					Asphalt and dark brown SAND and GRAVEL (FILL)
		67	15		Mottled tan and light gray CLAYEY SILT; moist; small reddish brown blebs; gray bedding fractures
		78	9		Light brown SILTY CLAY; moist; soft; dark reddish-brown blebs
		100	22		Light gray and mottled light gray and brown CLAYEY SILT
		94	13		Mottled dark brown and light brown SILTY CLAY
10					Brown CLAY, trace silt; moist
		100	15		Brown CLAYEY SILT; moist
		100	16		some orange staining; dark brown blebs become numerous
		100	12		Mottled brown and tan SILTY CLAY; orange-brown oxidation along vertical fracture zone; moist; blebs
		100	18		Light gray CLAYEY SILT; stained dark brown
20					Light gray SANDY CLAY; moist; brown staining
		33	15		Gray SILTY SAND, trace clay; moist
		83	36		becomes stained brown with coarser sand and some pea gravel (predominantly chert)
		94	70		becomes less well graded; some orange staining
		100	77		thin layer of black staining at 28.5 feet
30					
		100	74		becomes very moist
		100	68		yellow-orange and dark brown staining at 34.5 feet
		100	49		
		100	50		Orange to light gray, medium-grained SAND, trace gravel and silt; moist
40					
		100	68		
		100	60		becomes very moist
		100	9		
					Light brown to light gray CLAY with interbedded silts and thin light gray sandy silt laminae; very moist
					Augering terminated at 47.5 feet on 8-13-87. 4 inch Galvanized steel outer casing installed to depth of 49 feet.
50					

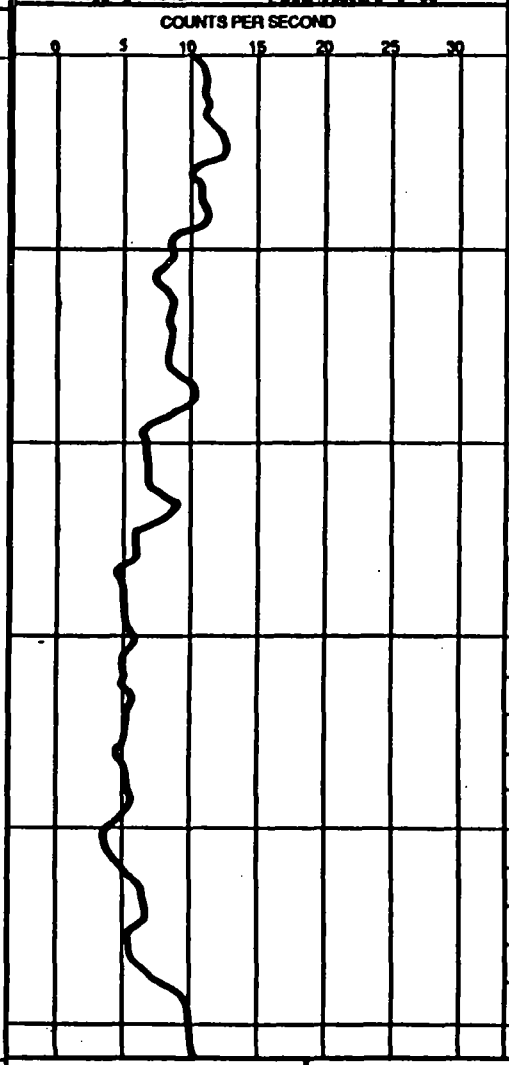
* Field-logged by Dames & Moore

WELL CONSTRUCTION DETAILS



GAMMA RAY LOG

Counts per second/ Division = 5	Casing type: 2" Stainless Steel
Displacement = 0	Top of log = Ground surface
Rate of logging = 15 ft/min.	Date logged: 5 - 5 - 88



Depth (feet)	Kaolinite % Clay	NOTES
0		Ground surface
	73	
	53	
10		
	43	
	40	
20		Top of sand
	29	
	22	
30		
	20	
	14	
40		
	25	
	35	Bottom of outer casing
50		Upper bentonite seal adjacent to clay layer - high gamma count

CLAYS AND SILTS

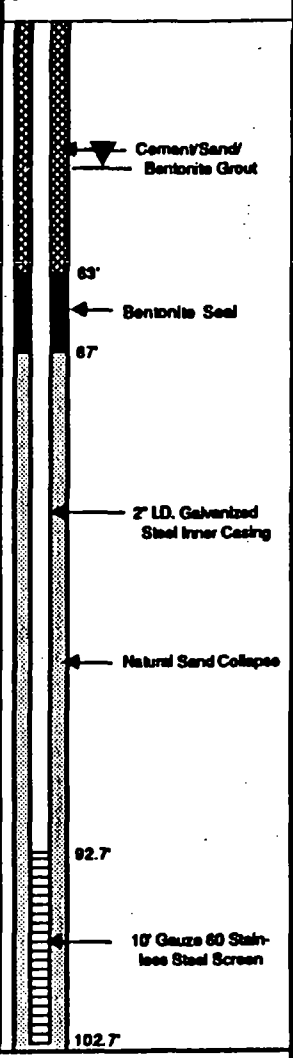
SANDS

CARRIER CORPORATION COLLIERVILLE, TENNESSEE	MONITOR WELL MW-1B, page 1 June 1988	GAMMA LOG GW - 1B	LOGGED BY: Guy Montfort Rich Hoefeld	LOGGING DEVICE: Mt. Sopris Model 1000C Dual Logger

Depth (Feet)	Sample Location	% Recovery	SPT Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
50		100	24		Layered tan, light brown, black, and red SANDY CLAY, increasing fine sand with depth
		100	18		Light tan CLAY; moist; occasional thin gray silty fine sand laminations
					Orange brown SANDY CLAY with light gray sandy laminations; moist
60		100	13		alternating 2 to 5 inch beds of light gray to light brown CLAY and orange brown to light gray SILTY FINE SAND; wet
		100	11		Light tan CLAY (heavy), trace sand; moist; orange brown silty clay laminations
		100	88+		Intergrading gray/tan SANDY CLAY and CLAY; moist
70					Brown, fine SILTY SAND; moist; some black staining
		78	104		becomes orange to reddish-brown with occasional clay seams and layers of hard ironstone; very moist
		44	99		Orange-brown, fine to medium-grained SAND with occasional thin gray clay laminae; wet; ironstone pebbles
80		78	94		becomes silty; 1 inch tan clay ball at 84.5 feet; wet
		72	97		becomes very light brown; poorly graded
90		78	95		becomes orange grading to pink
		72	13		becomes reddish-pink grading to tan/light brown
100					4 inch O.D. rotary-wash drilling terminated at 103 feet on 8-14-87. 2 inch galvanized steel casing and stainless steel screen (10-foot) installed to 102.7 feet.

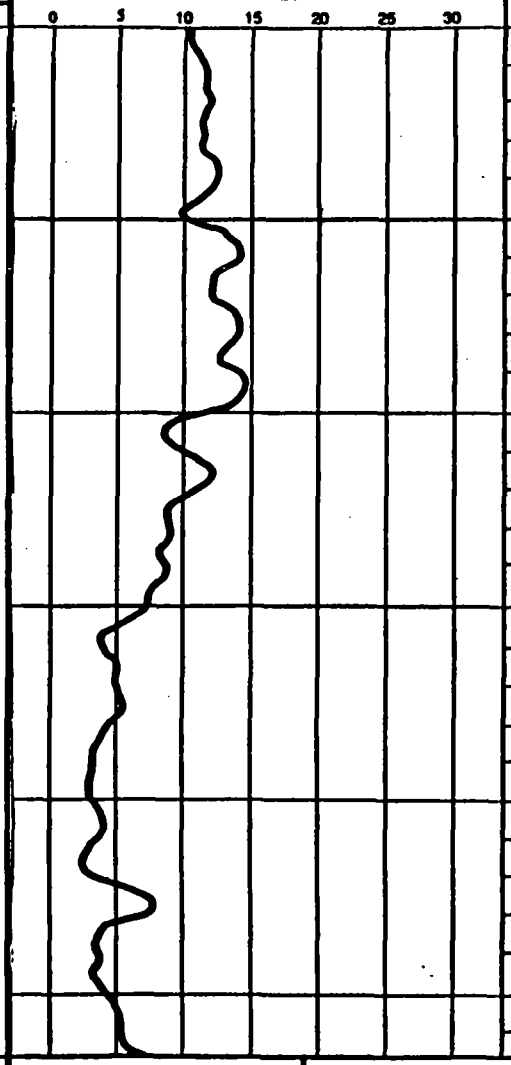
* Field-logged by Dames & Moore

WELL CONSTRUCTION DETAILS



GAMMA RAY LOG

Counts per second/ Division = 5	Casing type: 2" Stainless Steel
Displacement = 0	Top of log = Ground surface
Rate of logging = 15 ft/min.	Date logged: 5 - 5 - 88



Depth (feet)	Relative % Clay
50	
	67
	71
60	
	89
	60
70	
	58
	44
80	
	18
	10
90	
	16
	14
100	
	40

NOTES

CLAYS

Lower bentonite seal - adjacent to clay layers resulting in high gamma count

Top of lower sand

Natural sand collapse - adjacent to sand layer - lower gamma count

SANDS

Top of screen

Bottom of screen

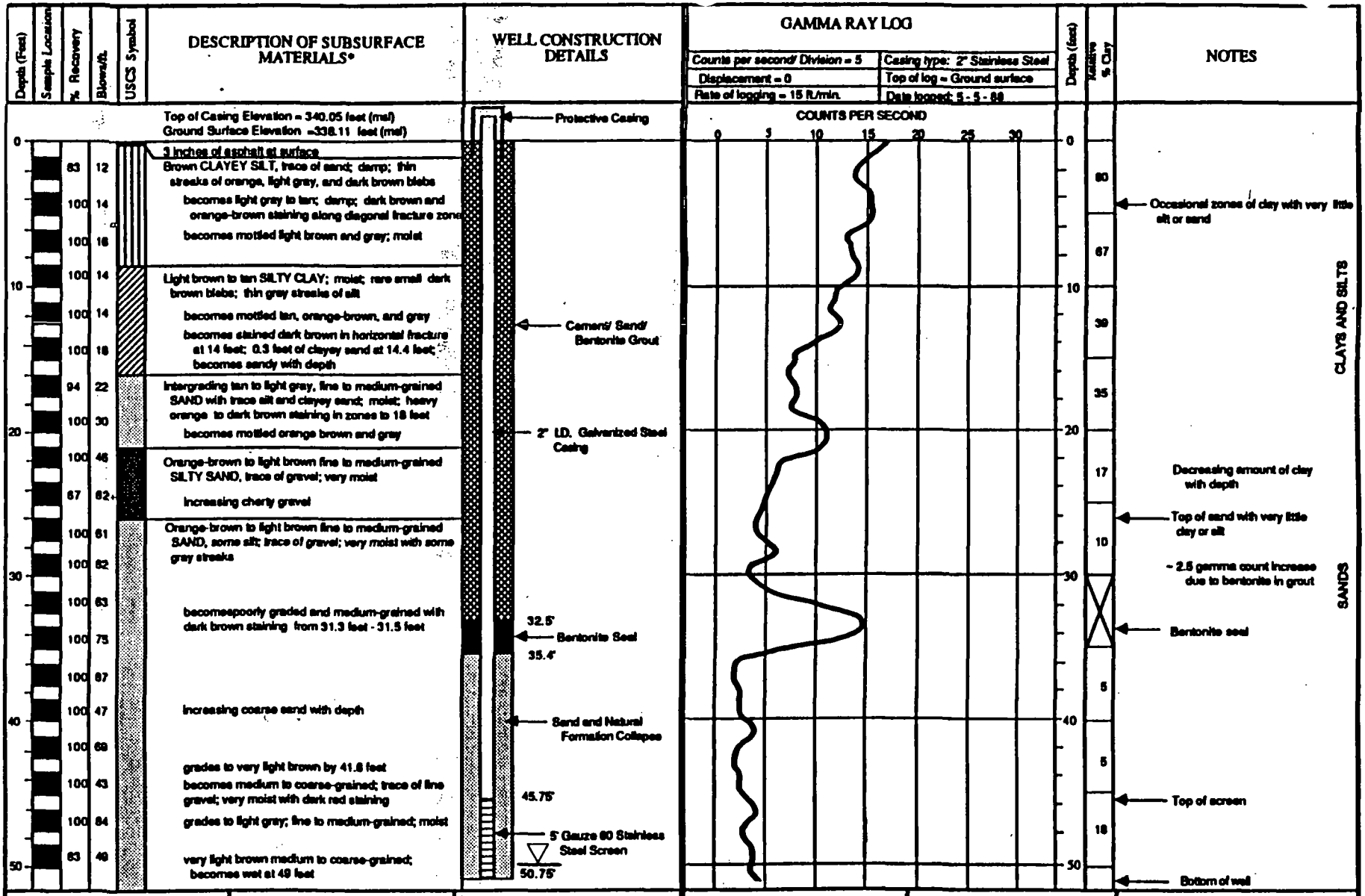
CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

MONITOR WELL
MW-1B, page 2
June 1988

GAMMA LOG
GW - 1B

LOGGED BY:
Guy Montfort
Rich Hosfeld

LOGGING DEVICE:
Mt. Sopris Model 1000C Dual Logger


Depth (Feet)
Sample Location
% Recovery
Blows/ft.
USCS Symbol
DESCRIPTION OF SUBSURFACE MATERIALS*
Top of Casing Elevation = 340.05 feet (msl)
Ground Surface Elevation =338.11 feet (msl)
3 inches of asphalt at surface
Brown CLAYEY SILT, trace of sand; damp; thin streaks of orange, light gray, and dark brown blebs
becomes light gray to tan; damp; dark brown and orange-brown staining along diagonal fracture zone
becomes mottled light brown and gray; moist
Light brown to tan SILTY CLAY; moist; rare small dark brown blebs; thin gray streaks of silt
becomes mottled tan, orange-brown, and gray
becomes stained dark brown in horizontal fracture at 14 feet; 0.3 feet of clayey sand at 14.4 feet; becomes sandy with depth
Intergrading tan to light gray, fine to medium-grained SAND with trace silt and clayey sand; moist; heavy orange to dark brown staining in zones to 18 feet
becomes mottled orange brown and gray
Orange-brown to light brown fine to medium-grained SILTY SAND, trace of gravel; very moist
Increasing cherty gravel
Orange-brown to light brown fine to medium-grained SAND, some silt; trace of gravel; very moist with some gray streaks
becomes poorly graded and medium-grained with dark brown staining from 31.3 feet - 31.5 feet
Increasing coarse sand with depth
grades to very light brown by 41.8 feet
becomes medium to coarse-grained; trace of fine gravel; very moist with dark red staining
grades to light gray; fine to medium-grained; moist
very light brown medium to coarse-grained; becomes wet at 49 feet
WELL CONSTRUCTION DETAILS
Protective Casing
Cement/ Sand/ Bentonite Grout
2" I.D. Galvanized Steel Casing
32.5'
Bentonite Seal
35.4'
Sand and Natural Formation Collapse
45.75'
5' Gauze 60 Stainless Steel Screen
50.75'
GAMMA RAY LOG
Counts per second/ Division = 5
Displacement = 0
Rate of logging = 15 ft/min.
Casing type: 2" Stainless Steel
Top of log = Ground surface
Date logged: 5 - 5 - 88
COUNTS PER SECOND
0 5 10 15 20 25 30
Depth (feet)
Relative % Clay
80
67
39
35
17
10
5
5
18
NOTES
Occasional zones of clay with very little silt or sand
Decreasing amount of clay with depth
Top of sand with very little clay or silt
~ 2.5 gamma count increase due to bentonite in grout
Bentonite seal
Top of screen
Bottom of well
CLAYS AND SILTS
SANDS
* Field-logged by Dames & Moore
CARRIER CORPORATION
COLLIERVILLE, TENNESSEE
MONITOR WELL
MW-3, page 1
June 1988
GAMMA LOG
GW-3
LOGGED BY:
Guy Monfort
Rich Hosfeld
LOGGING DEVICE:
Mt. Sopris Model 1000C Dual Logger

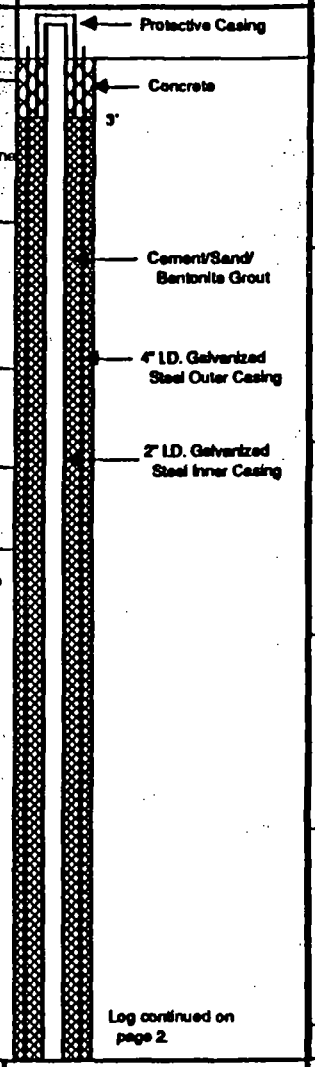
Depth (Feet)	Sample Location	% Recovery	Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*	WELL CONSTRUCTION DETAILS
50					become orange-brown and wet at 51.3 feet	Sand
		89	13		Mottled orange-brown and reddish-pink silty clay; moist	51.3' Bentonite
		100	ST		Bottom of shelby tube shows light brown SILTY CLAY with some fine sand	53.3'
					Boring terminated at 55 feet on 9-27-87	55'
60						
70						
80						
90						
100						

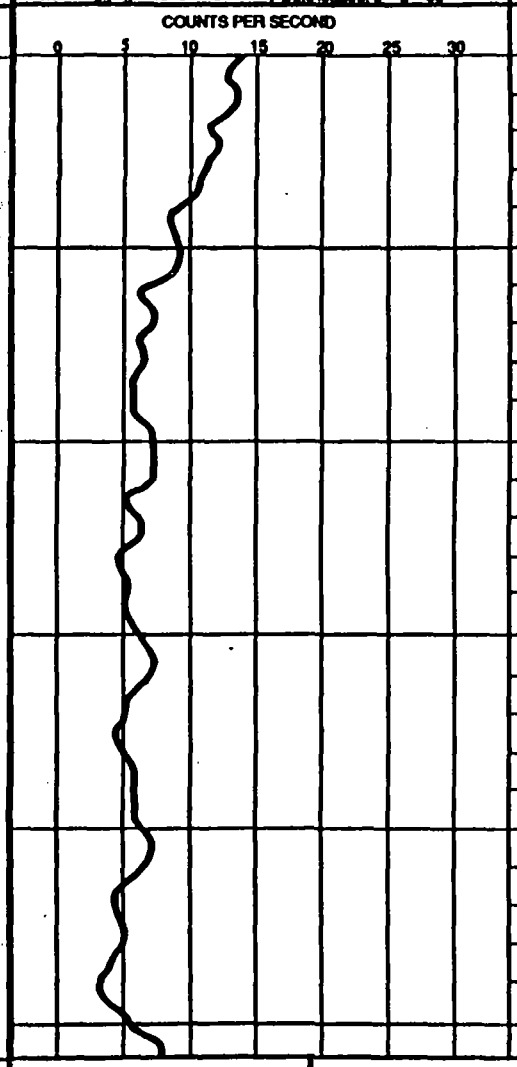
* Field-logged by Dames & Moore

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

MONITOR WELL
MW-3, page 2
June 1988

Depth (Feet)	Sample Location	% Recovery	Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
					Top of Casing Elevation =339.95 feet (msl) Ground Surface Elevation = 338.08 feet (msl)
0					3 inches of asphalt at surface
		83	12		Brown CLAYEY SILT, trace of sand; damp; thin streaks of orange, light gray, and dark brown blebs
		100	14		becomes light gray to tan; damp; dark brown and orange-brown staining along diagonal fracture zone
		100	16		becomes mottled light brown and gray; moist
10		100	14		Light brown to tan SILTY CLAY; moist; rare small dark brown blebs; thin gray streaks of silt
		100	14		becomes mottled tan, orange-brown, and gray
		100	18		becomes stainedark brown in horizontal fracture at 14 feet; 0.3 feetof clayey sand at 14.4 feet; becomes sandy with depth
		94	22		Intergrading tan to light gray, fine to medium-grained SAND with trace silt and clayey sand; moist; heavy orange to dark brown staining in zones to 18 feet
20		100	30		becomes mottled orange brown and gray
		100	46		Orange brown to light brown fine to medium-grained SILTY SAND, trace of gravel; very moist
		67	82+		increasing cherty gravel
		100	81		Orange brown to light brown fine to medium-grained SAND, some silt; trace of gravel; very moist with some gray streaks
30		100	82		
		100	83		
		100	75		becomes poorly graded and medium grained with dark brown staining from 31.3 feet to31.5 feet
		100	87		
40		100	47		Increasing coarse sand with depth
		100	69		
		100	43		grades to very light brown by 41.8 feet becomes medium to coarse-grained; trace of fine gravel; very moist with dark red staining
		100	84		grades to light gray; fine to medium-grained; moist
50		83	49		very light brown medium to coarse-grained; becomes wet at 49 feet





Relative % Clay	NOTES
77	Very high clay content in silt; some zones actually silty clay
50	CLAYS AND SILTS
25	
	Top of sand
24	
25	
24	Clay content decreasing with depth
18	SANDS
28	
17	
18	
	Increasing clay content

* Field-logged by Dames & Moore

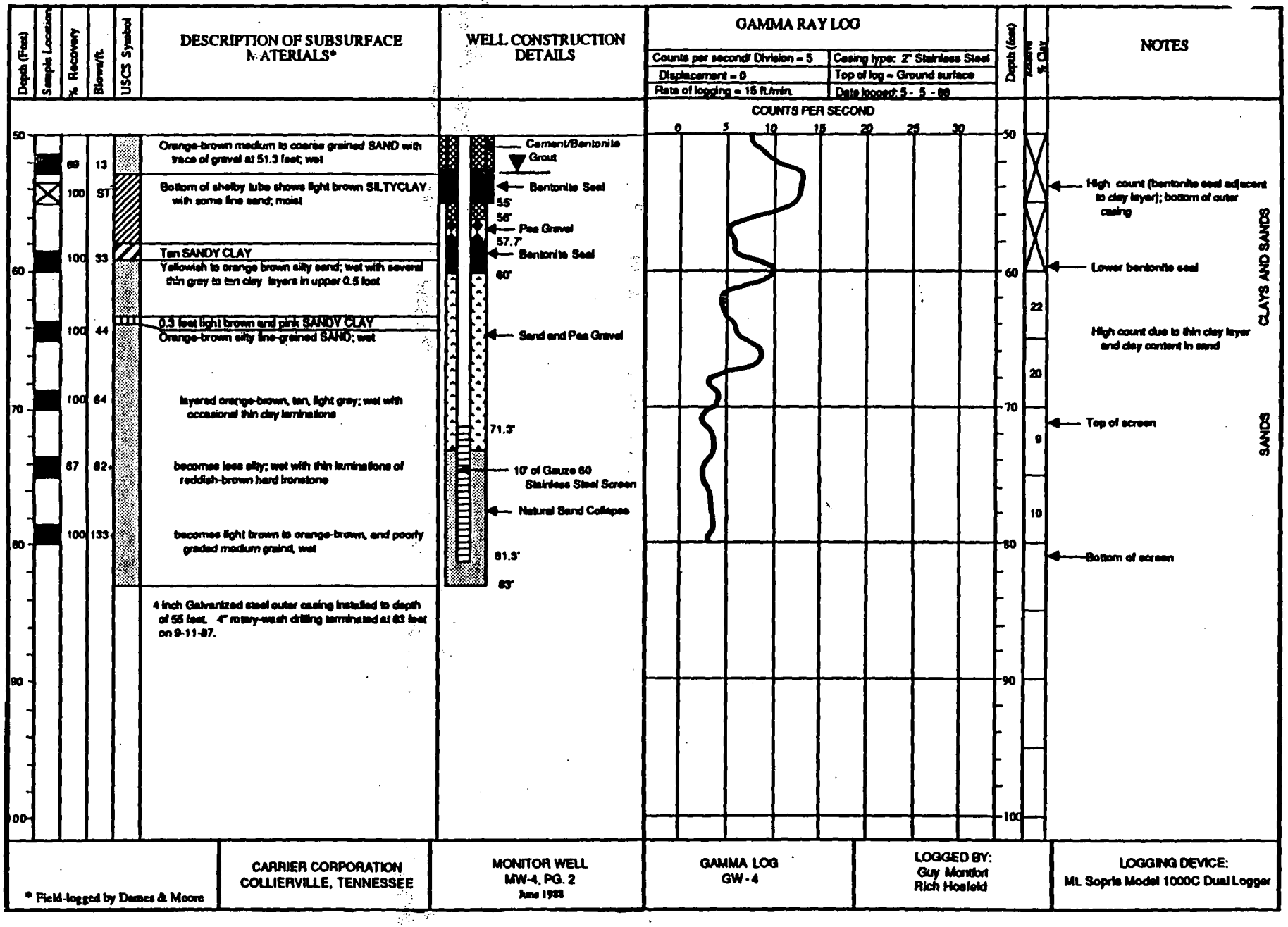
CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

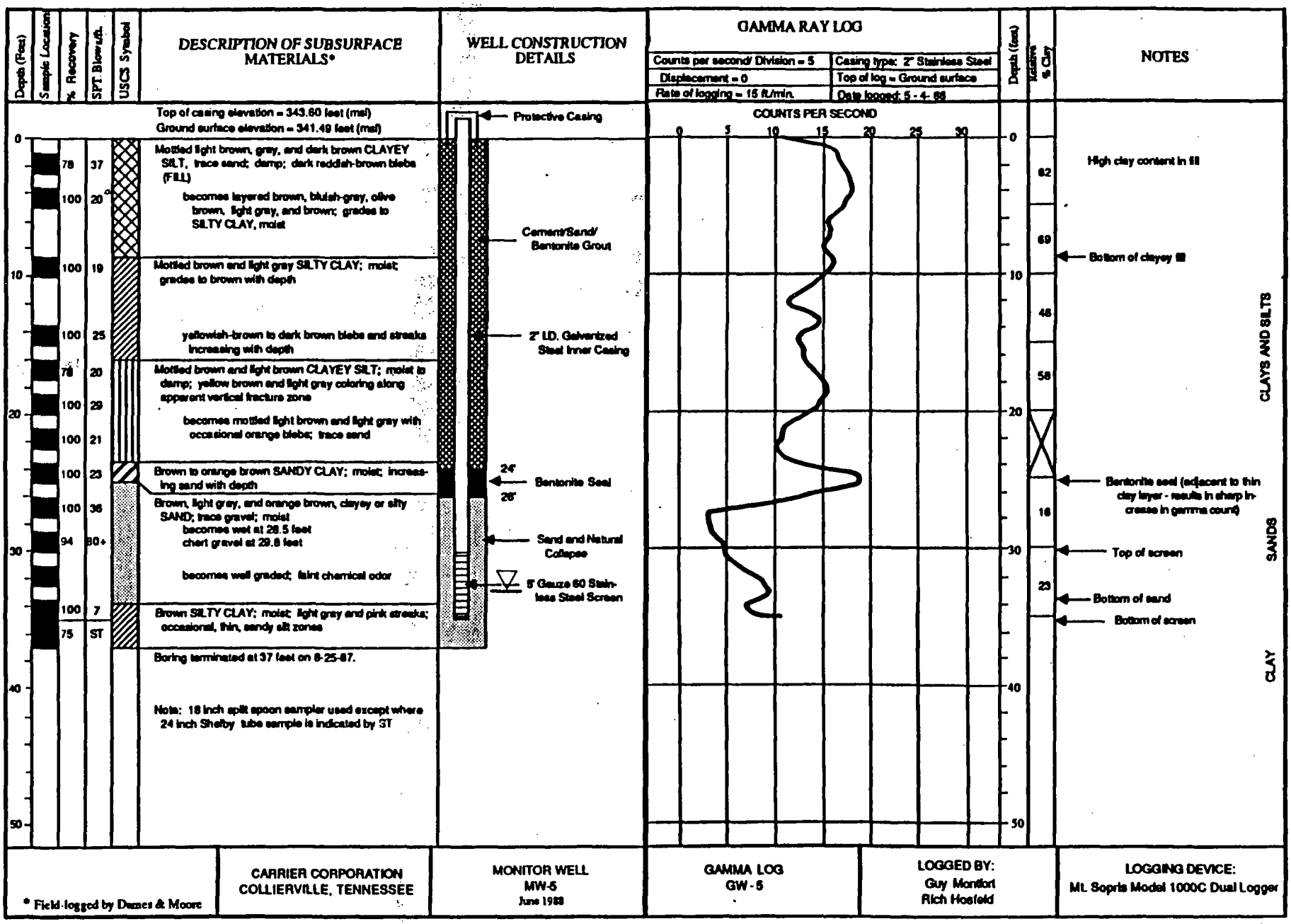
MONITOR WELL
MW-4, page 1
June 1988

GAMMA LOG
GW - 4

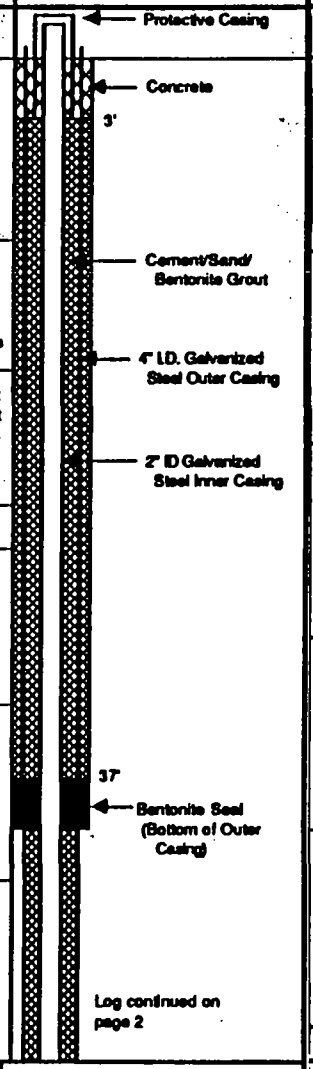
LOGGED BY:
Guy Montfort
Rich Hosfeld

LOGGING DEVICE:
ML Sopris Model 1000C Dual Logger


Depth (Feet)
Sample Location
% Recovery
Blows/ft.
USCS Symbol
DESCRIPTION OF SUBSURFACE MATERIALS*
WELL CONSTRUCTION DETAILS
GAMMA RAY LOG
Counts per second/ Division = 5
Displacement = 0
Rate of logging = 15 ft/min.
Casing type: 2" Stainless Steel
Top of log = Ground surface
Date logged: 5 - 5 - 88
COUNTS PER SECOND
0 5 10 15 20 25 30
Depth (feet)
% Clay
NOTES
50 60 70 80 90 100
89 13
100 ST
100 33
100 44
100 64
87 82
100 133
Orange-brown medium to coarse grained SAND with trace of gravel at 51.3 feet; wet
Bottom of shelby tube shows light brown SILTYCLAY with some fine sand; moist
Tan SANDY CLAY
Yellowish to orange brown silty sand; wet with several thin grey to tan clay layers in upper 0.5 foot
0.5 feet light brown and pink SANDY CLAY
Orange-brown silty fine-grained SAND; wet
layered orange-brown, tan, light grey; wet with occasional thin clay laminations
becomes less silty; wet with thin laminations of reddish-brown hard ironstone
becomes light brown to orange-brown, and poorly graded medium grained, wet
4 inch Galvanized steel outer casing installed to depth of 55 feet. 4" rotary-wash drilling terminated at 83 feet on 9-11-87.
Cement/Bentonite Grout
Bentonite Seal
55'
56'
Pea Gravel
57.7'
Bentonite Seal
60'
Sand and Pea Gravel
71.3'
10' of Gauze 60 Stainless Steel Screen
Natural Sand Collapse
81.3'
83'
22
20
9
10
High count (bentonite seal adjacent to clay layer); bottom of outer casing
Lower bentonite seal
High count due to thin clay layer and clay content in sand
Top of screen
Bottom of screen
CLAYS AND SANDS
SANDS
* Field-logged by Dames & Moore
CARRIER CORPORATION
COLLIERVILLE, TENNESSEE
MONITOR WELL
MW-4, PG. 2
June 1988
GAMMA LOG
GW - 4
LOGGED BY:
Guy Montfort
Rich Hosfeld
LOGGING DEVICE:
ML Sopris Model 1000C Dual Logger


Depth (Feet)
Sample Location
% Recovery
SPT: Blows/ft.
USCS Symbol
DESCRIPTION OF SUBSURFACE MATERIALS*
WELL CONSTRUCTION DETAILS
GAMMA RAY LOG
Counts per second/ Division = 5
Displacement = 0
Rate of logging = 15 ft/min.
Casing type: 2" Stainless Steel
Top of log = Ground surface
Date logged: 5 - 4 - 88
COUNTS PER SECOND
0 5 10 15 20 25 30
Relative % Clay
NOTES
Top of casing elevation = 343.60 feet (msl)
Ground surface elevation = 341.49 feet (msl)
Mottled light brown, gray, and dark brown CLAYEY SILT, trace sand; damp; dark reddish-brown blebs (FILL)
becomes layered brown, bluish-gray, olive brown, light gray, and brown; grades to SILTY CLAY, moist
Mottled brown and light gray SILTY CLAY; moist; grades to brown with depth
yellowish-brown to dark brown blebs and streaks increasing with depth
Mottled brown and light brown CLAYEY SILT; moist to damp; yellow brown and light gray coloring along apparent vertical fracture zone
becomes mottled light brown and light gray with occasional orange blebs; trace sand
Brown to orange brown SANDY CLAY; moist; increasing sand with depth
Brown, light gray, and orange brown, clayey or silty SAND; trace gravel; moist
becomes wet at 28.5 feet
chert gravel at 29.8 feet
becomes well graded; faint chemical odor
Brown SILTY CLAY; moist; light gray and pink streaks; occasional, thin, sandy silt zones
Boring terminated at 37 feet on 8-25-87.
Note: 18 inch split spoon sampler used except where 24 inch Shelby tube sample is indicated by ST
Protective Casing
Cement/Sand/ Bentonite Grout
2" I.D. Galvanized Steel Inner Casing
24'
26'
Bentonite Seal
Sand and Natural Collapse
5' Gauze 60 Stainless Steel Screen
High clay content in fill
Bottom of clayey fill
Bentonite seal (adjacent to thin clay layer - results in sharp increase in gamma count)
Top of screen
Bottom of sand
Bottom of screen
CLAYS AND SILTS
SANDS
CLAY
* Field-logged by Dames & Moore
CARRIER CORPORATION
COLLIERVILLE, TENNESSEE
MONITOR WELL
MW-5
June 1988
GAMMA LOG
GW - 5
LOGGED BY:
Guy Montfort
Rich Hosfeld
LOGGING DEVICE:
Mt. Sopris Model 1000C Dual Logger

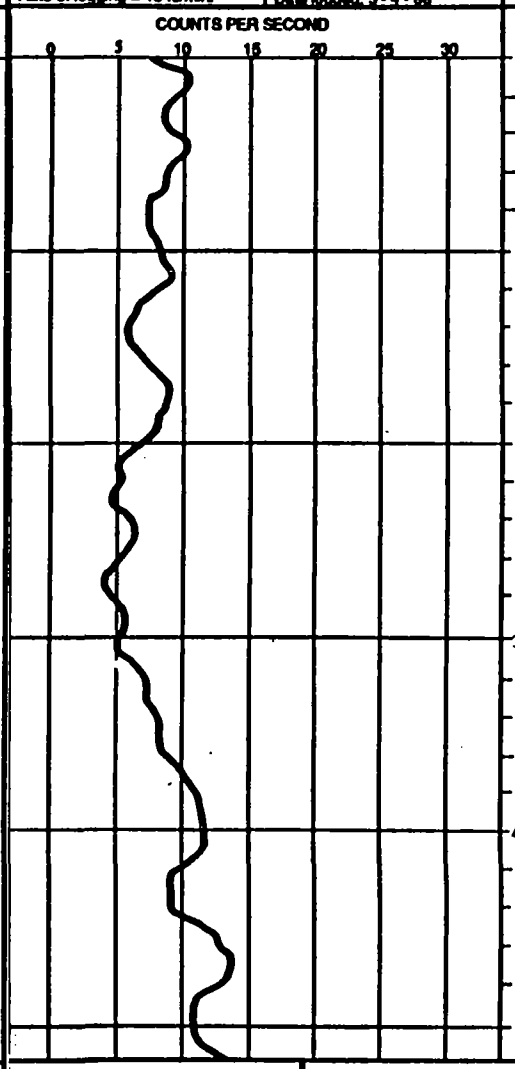
Depth (Feet)	Sample Location	% Recovery	Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
					Top of Casing Elevation = 343.28 feet (msl) Ground Surface Elevation = 341.53 feet (msl)
0		78	37		Mottled light brown, gray, and dark brown CLAYEY SILT, trace sand; damp; dark reddish-brown blebs (FILL)
		100	23		becomes layered brown, bluish-gray, olive brown, light gray and brown; grades to SILTY CLAY
10		100	19		Mottled brown and light gray SILTY CLAY; moist; grades to brown with depth
		100	25		yellowish-brown to dark brown blebs and streaks increasing with depth
		78	20		Mottled brown and light brown CLAYEY SILT; damp; yellow brown and light gray coloring along apparent vertical fracture zone
20		100	29		becomes mottled light brown and light gray with occasional orange blebs; trace sand
		100	23		Brown to orange brown SANDY CLAY; moist; increasing sand with depth
		100	36		Brown, light gray and orange brown, clayey or silty SAND; trace gravel; moist
30		94	80+		becomes wet chert gravel at 29.8 feet
		100	59		well graded; faint chemical odor
		100	7		Brown SILTY CLAY; moist, light gray and pink streaks; occasional thin, sandy silt zones
		75	ST		
40		100	13		alternating gray brown and orange brown; trace of sand; moist
		100	16		Medium gray CLAY, trace of silt; moist; black carbonaceous inclusions at 44.1 feet and 44.5 feet
50		100	13		



WELL CONSTRUCTION DETAILS

GAMMA RAY LOG

Counts per second/ Division = 5	Casing type: 2" Stainless Steel
Displacement = 0	Top of log = Ground surface
Rate of logging = 15 ft/min.	Date logged: 5 - 4 - 88



Depth (feet)	Relative % Clay	NOTES	
0		Ground surface	
	31		
	25		
10		Bottom of fill	
	18		
	22		SILTS AND CLAYS
20			
	14		
		Top of clayey/silty sand	
	11	Grades more clay	SAND
30			
	29	Top of clay	
		Bottom of outer casing - slight increase in gamma count	
		Upper bentonite seal	
40			
	34	Clay with varying amounts of sand and silt	
	42		CLAYS
50			

* Field-logged by Dames & Moore

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

MONITOR WELL
MW-6, page 1
June 1988

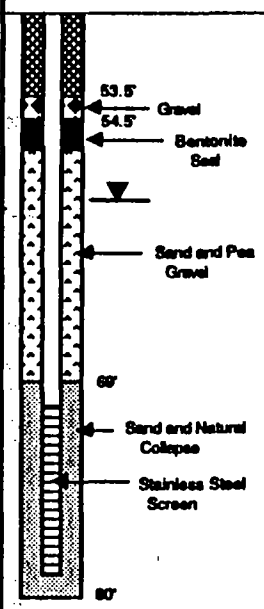
GAMMA LOG
GW - 6

LOGGED BY:
Guy Montfort
Rich Hosfeld

LOGGING DEVICE:
Mt. Sopris Model 1000C Dual Logger

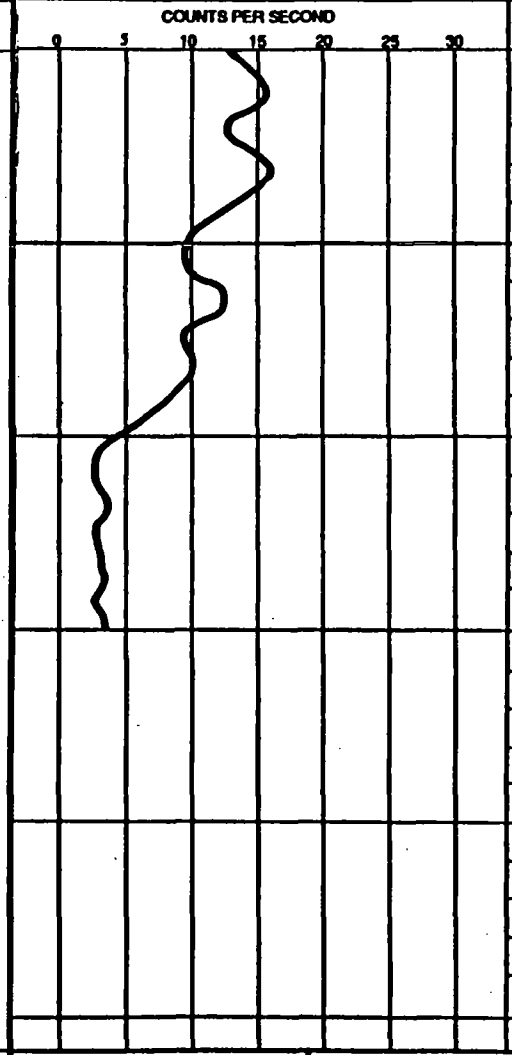
Depth (Feet)	Sample Location	% Recovery	Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
50					See page 1 of log
		100	17		Medium gray SANDY CLAY to CLAYEY SAND; very moist; sand very fine-grained, increasing sand content with depth
60		100	10		Medium gray fine SAND, some clay; very moist to moist
		100	15		brownish gray with varying amounts of clay; becomes yellowish-brown at 64.6 feet
70		78	66		orange brown to light brown medium to coarse-grained; traces of dark brown staining; wet
		100	63		grades to very light brown
80		83	86		
					Boring terminated at 80 feet on 9-9-87
90					
100					

WELL CONSTRUCTION DETAILS



GAMMA RAY LOG

Counts per second/ Division = 5	Casing type: 2" Stainless Steel
Displacement = 0	Top of log = Ground surface
Rate of logging = 15 ft/min.	Date logged: 5 - 4 - 88



Depth (feet)	Relative % Clay	NOTES
50		High count - bentonite in grout adjacent to clay layer
	80	Gravel
		Lower bentonite seal
	50	
60		Top of sand
	38	
	19	Sand/pea gravel filter pack adjacent to sand layer - higher count than natural collapse zone due to pea gravel
70		
	8	
		Natural sand collapse - adjacent to sand layer - lower count
	8	
80		Bottom of screen
90		
100		

CLAYS

SANDS

* Field-logged by Dames & Moore

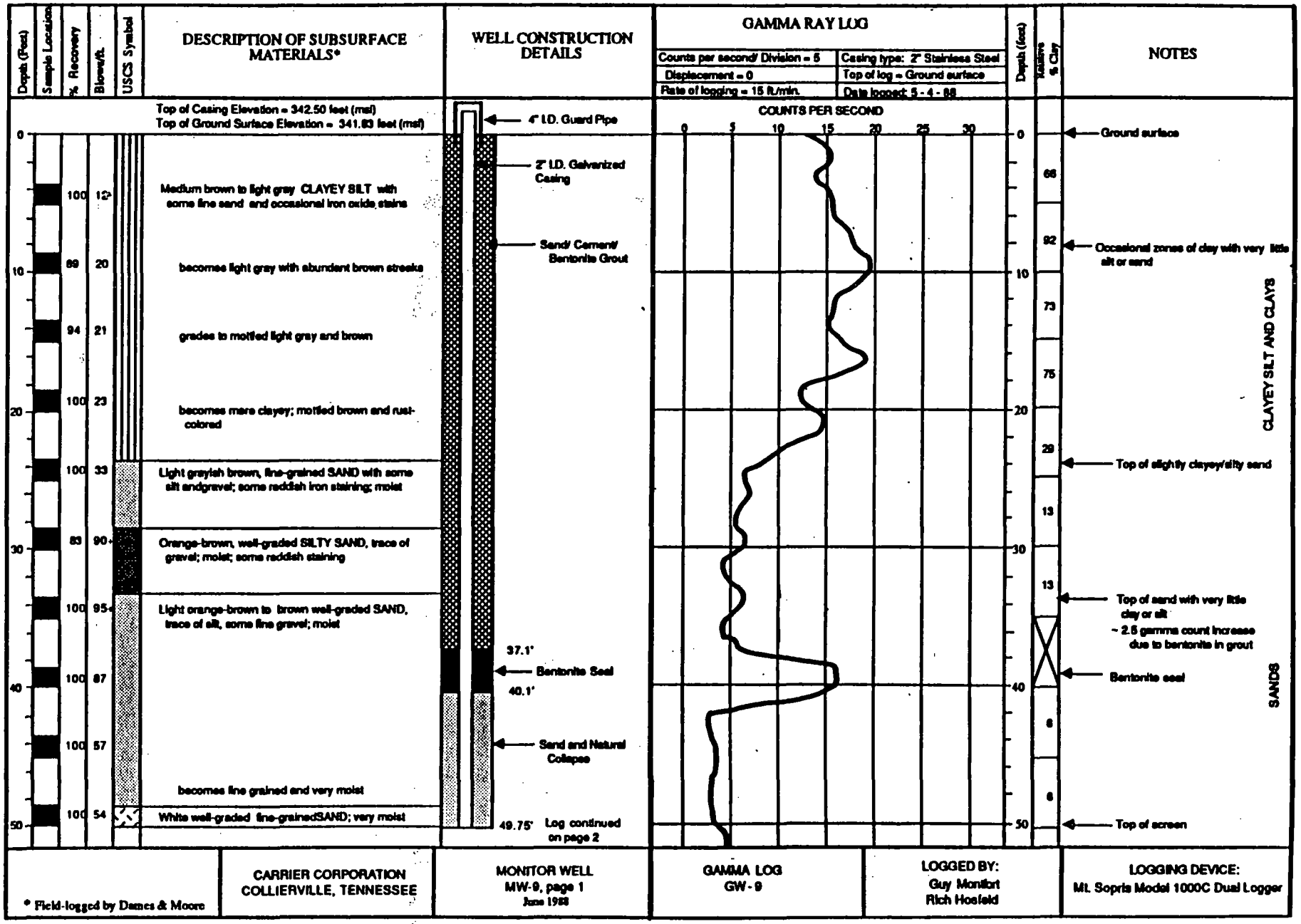
CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

MONITOR WELL
MW-6, page 2
June 1988

GAMMA LOG
GW-6

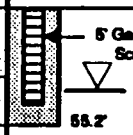
LOGGED BY:
Guy Montfort
Rich Hosfeld

LOGGING DEVICE:
Mt. Sopris Model 1000C Dual Logger


Depth (Feet)
Sample Location
% Recovery
Blows/ft.
USCS Symbol
DESCRIPTION OF SUBSURFACE MATERIALS*
Top of Casing Elevation = 342.50 feet (msl)
Top of Ground Surface Elevation = 341.83 feet (msl)
Medium brown to light gray CLAYEY SILT with some fine sand and occasional iron oxide stains
becomes light gray with abundant brown streaks
grades to mottled light gray and brown
becomes more clayey; mottled brown and rust-colored
Light grayish brown, fine-grained SAND with some silt andgravel; some reddish iron staining; moist
Orange-brown, well-graded SILTY SAND, trace of gravel; moist; some reddish staining
Light orange-brown to brown well-graded SAND, trace of silt, some fine gravel; moist
becomes fine grained and very moist
White well-graded fine-grainedSAND; very moist
WELL CONSTRUCTION DETAILS
4" I.D. Guard Pipe
2" I.D. Galvanized Casing
Sand/ Cement/ Bentonite Grout
37.1'
Bentonite Seal
40.1'
Sand and Natural Collapse
49.75'
Log continued on page 2
GAMMA RAY LOG
Counts per second/ Division = 5
Displacement = 0
Rate of logging = 15 ft/min.
Casing type: 2" Stainless Steel
Top of log = Ground surface
Date logged: 5 - 4 - 88
COUNTS PER SECOND
Depth (feet)
Relative % Clay
NOTES
Ground surface
Occasional zones of clay with very little silt or sand
Top of slightly clayey/silty sand
Top of sand with very little clay or silt
~ 2.5 gamma count increase due to bentonite in grout
Bentonite seal
Top of screen
CLAYEY SILT AND CLAYS
SANDS
* Field-logged by Dames & Moore
CARRIER CORPORATION
COLLIERVILLE, TENNESSEE
MONITOR WELL
MW-9, page 1
June 1988
GAMMA LOG
GW - 9
LOGGED BY:
Guy Monifort
Rich Hosfeld
LOGGING DEVICE:
Mt. Sopris Model 1000C Dual Logger

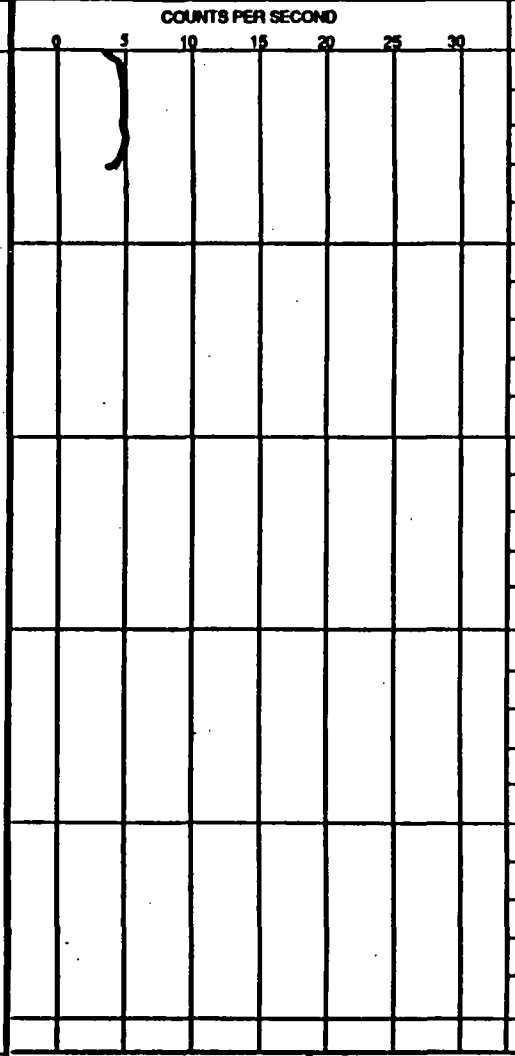
Depth (Feet)	Sample Location	% Recovery	Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
50					Light gray and orange-brown very fine SAND; very moist
	■	100	16		Light gray red swirled layers to orange brown CLAY and SILTY CLAY with some very fine sand; moist
					Boring terminated at 55.2 feet on 9-2-87
60					
70					
80					
90					
100					

WELL CONSTRUCTION DETAILS



GAMMA RAY LOG

Counts per second/ Division = 5	Casing type: 2" Stainless Steel
Displacement = 0	Top of log = Ground surface
Rate of logging = 15 ft/min.	Date logged: 5 - 4 - 88



Depth (feet)	Relative % Clay	NOTES
50		
	10	Natural sand collapse - adjacent to sand layer - lower gamma count
		Bottom of screen
60		
70		
80		
90		
100		

* Field-logged by Dames & Moore

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

MONITOR WELL
MW-9, page 2
June 1988

GAMMA LOG
GW - 9

LOGGED BY:
Guy Monifort
Rich Hosfeld

LOGGING DEVICE:
Mt. Sopris Model 1000C Dual Logger

Depth (Feet)	Sample Location	% Recovery	Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
					Top of Casing Elevation = 343.66 feet (msl) Top of Ground Surface Elevation = 341.64 feet (msl)
0					Medium brown to light gray CLAYEY SILT with occasional fine sand grains and iron oxide stains
10					brown streaks become abundant
					appears layered
20					becomes more clayey; mottled brown and rust colored
					Light gray-brown, fine-grained SAND with gravel; some reddish iron staining
30					Orange-brown, well-graded SILTY SAND, trace of gravel; some reddish staining
					Light orange-brown to brown well-graded SAND, trace of silt, some fine gravel
40					Increasing coarse sand
50					Orange-brown to white well-graded SAND

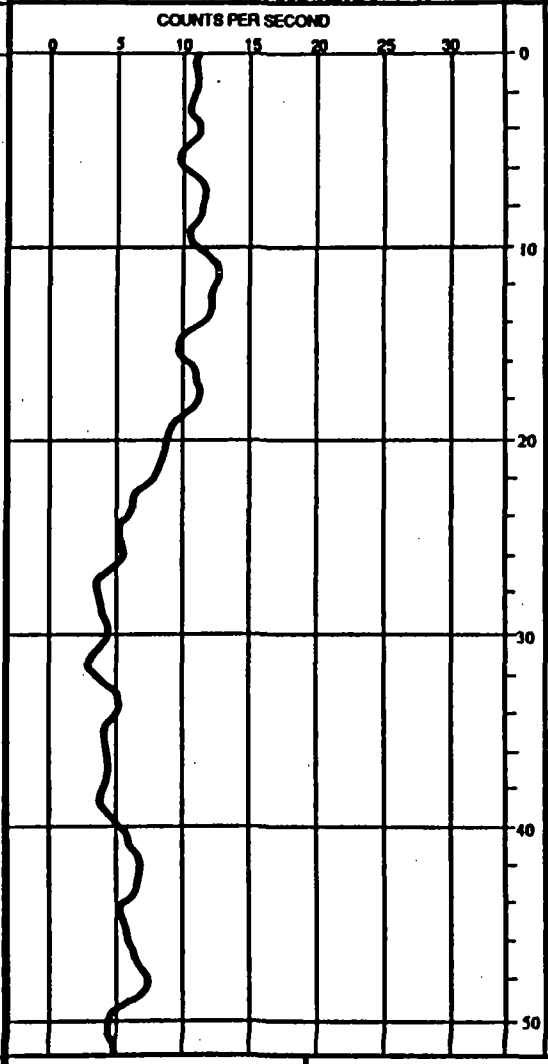
WELL CONSTRUCTION DETAILS

- 8" I.D. PVC Outer Casing
- 4" I.D. Galvanized Steel Casing
- Sand/ Cement/ Bentonite Grout

Log continued on page 2

GAMMA RAY LOG

Counts per second/ Division = 5	Casing type: 2" Stainless Steel
Displacement = 0	Top of log = Ground surface
Rate of logging = 15 ft/min.	Date logged: 5 - 4 - 88



Depth (feet)	Relative % Clay	NOTES
0		Ground surface
	87	CLAYEY SILT AND CLAYS
	82	
10		
	78	Occasional zones of clay with very little silt or sand
	65	
20		
	25	Top of slightly clayey/silty sand
	14	
30		
	17	Top of sand with very little clay or silt
	18	SANDS
40		
	28	
	28	
50		

*Based on information provided by R.F. Weston, Inc., and comparison with adjacent borings.

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

MONITOR WELL
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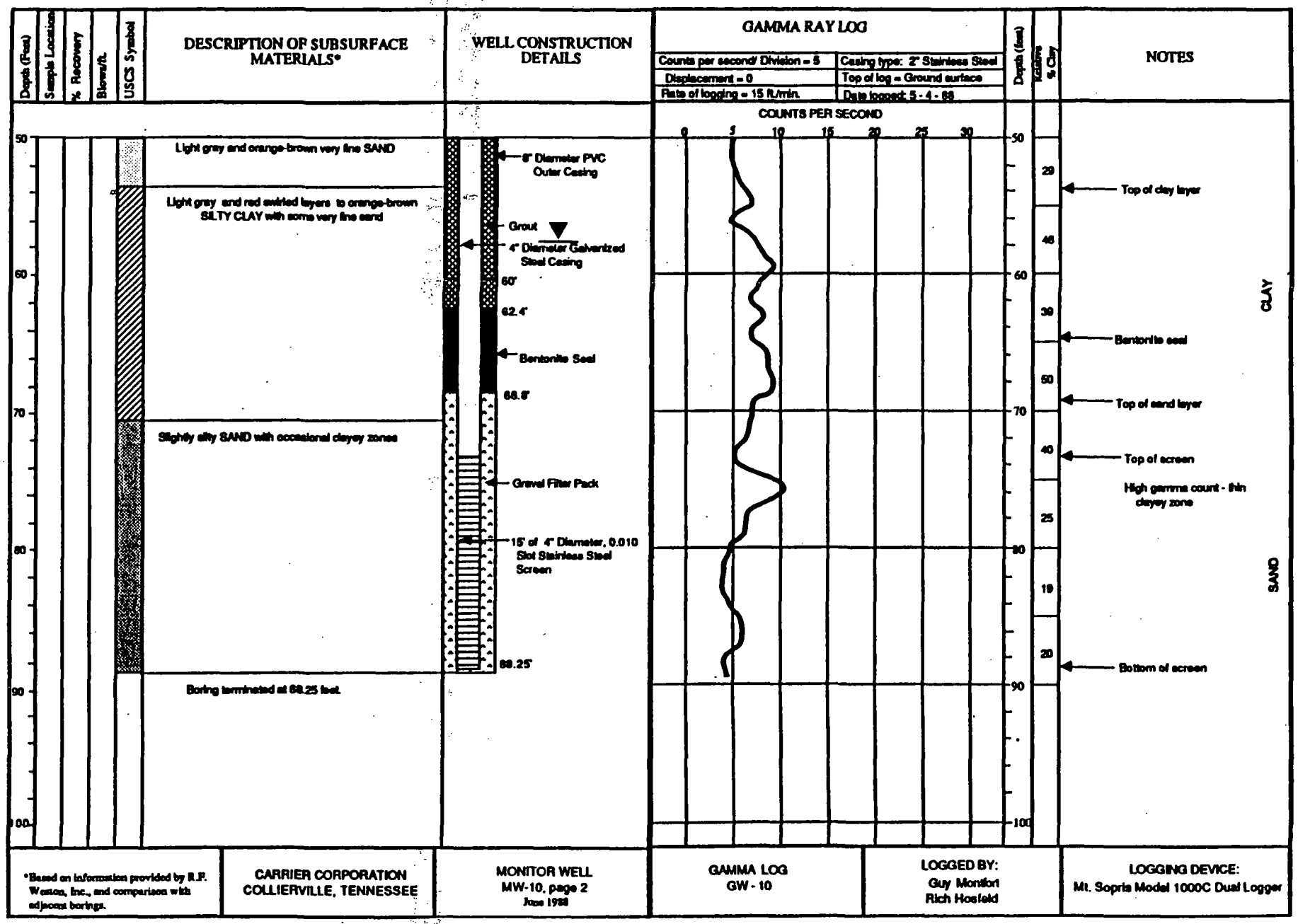
June 1988

GAMMA LOG
GW - 10

LOGGED BY:
Guy Monifort
Rich Hosfeld

LOGGING DEVICE:
Mt. Sopris Model 1000C Dual Logger



*Based on information provided by R.F. Weston, Inc., and comparison with adjacent borings.

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

MONITOR WELL
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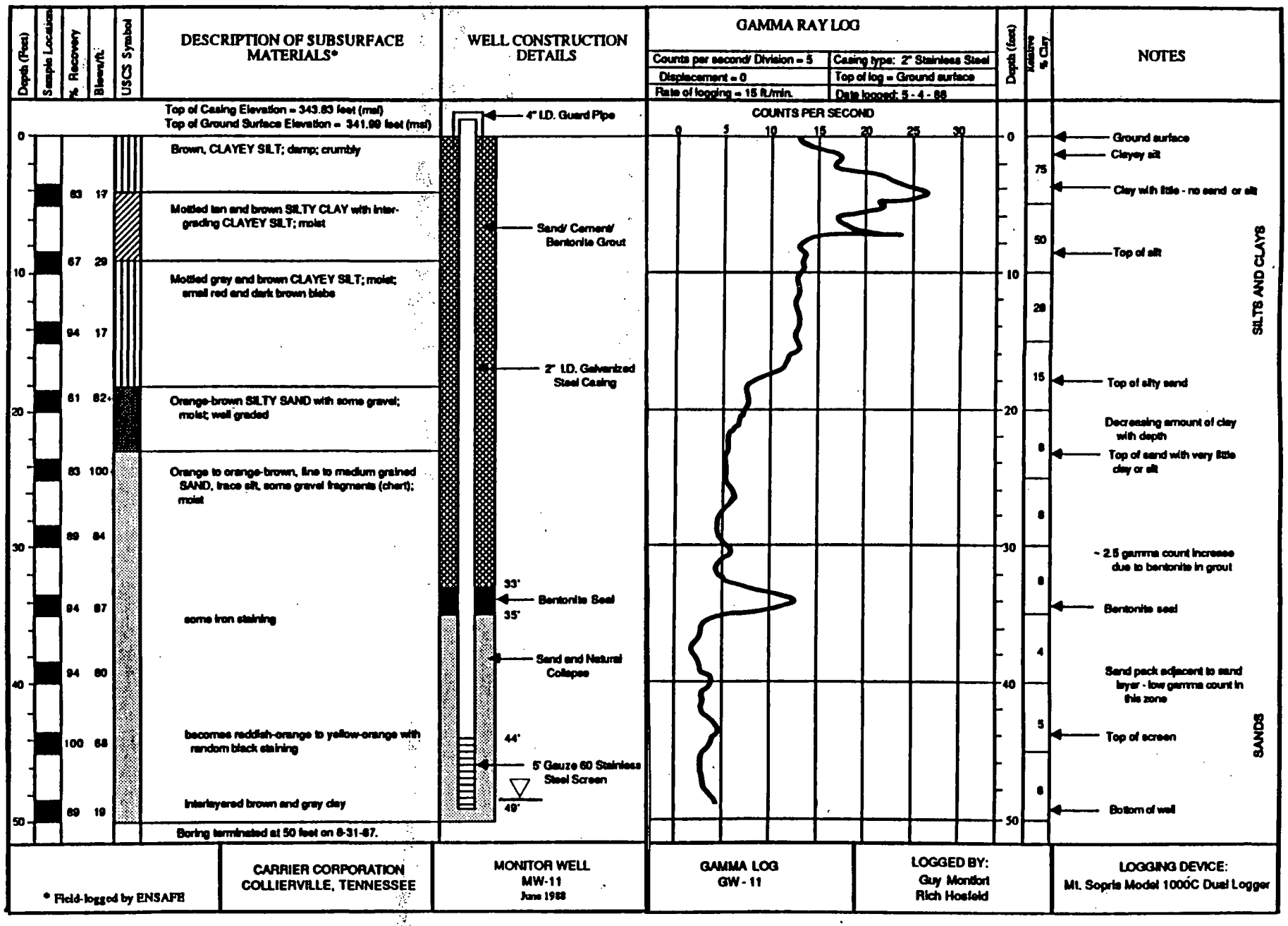
June 1988

GAMMA LOG
GW - 10

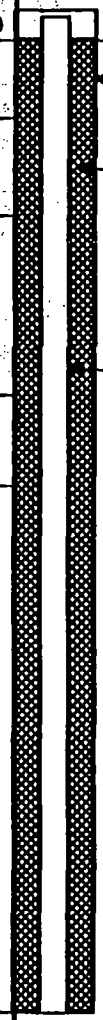
LOGGED BY:
Guy Monfort
Rich Hosfeld

LOGGING DEVICE:
Mt. Sopris Model 1000C Dual Logger


Depth (Feet)
Sample Location
% Recovery
Blows/ft.
USCS Symbol
DESCRIPTION OF SUBSURFACE MATERIALS*
WELL CONSTRUCTION DETAILS
GAMMA RAY LOG
Counts per second/ Division = 5
Casing type: 2" Stainless Steel
Displacement = 0
Top of log = Ground surface
Rate of logging = 15 ft/min.
Date logged: 5 - 4 - 88
COUNTS PER SECOND
0 5 10 15 20 25 30
Relative % Clay
NOTES
Top of Casing Elevation = 343.83 feet (msl)
Top of Ground Surface Elevation = 341.99 feet (msl)
Brown, CLAYEY SILT; damp; crumbly
Mottled tan and brown SILTY CLAY with inter-grading CLAYEY SILT; moist
Mottled gray and brown CLAYEY SILT; moist; small red and dark brown blebs
Orange-brown SILTY SAND with some gravel; moist; well graded
Orange to orange-brown, fine to medium grained SAND, trace silt, some gravel fragments (chert); moist
some iron staining
becomes reddish-orange to yellow-orange with random black staining
Interlayered brown and gray clay
Boring terminated at 50 feet on 8-31-87.
83 17
67 29
94 17
81 82+
83 100
89 84
94 87
94 80
100 68
89 19
4" I.D. Guard Pipe
Sand/ Cement/ Bentonite Grout
2" I.D. Galvanized Steel Casing
33'
Bentonite Seal
35'
Sand and Natural Collapse
44'
5' Gauze 60 Stainless Steel Screen
49'
75
50
28
15
8
8
8
4
5
8
Ground surface
Clayey silt
Clay with little - no sand or silt
Top of silt
Top of silty sand
Decreasing amount of clay with depth
Top of sand with very little clay or silt
~ 2.5 gamma count increase due to bentonite in grout
Bentonite seal
Sand pack adjacent to sand layer - low gamma count in this zone
Top of screen
Bottom of well
SILTS AND CLAYS
SANDS
* Field-logged by ENSAFE
CARRIER CORPORATION
COLLIERVILLE, TENNESSEE
MONITOR WELL
MW-11
June 1988
GAMMA LOG
GW - 11
LOGGED BY:
Guy Montfort
Rich Hosfeld
LOGGING DEVICE:
Mt. Sopris Model 1000C Dual Logger

Depth (Feet)	Sample Location	% Recovery	Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
					Top of Casing Elevation = 344.44feet (msl) Top of Ground Surface Elevation = 342.08 feet (msl)
0					Brown, CLAYEY SILT; crumbly
					Mottled tan and brown SILTY CLAY with intergrading CLAYEY SILT
10					Mottled gray and brown CLAYEY SILT; small red and dark brown blebs
20					Orange-brown SILTY SAND with some gravel; well graded
					Orange to orange-brown, fine to medium grained SAND, trace silt, some gravel fragments (chert);
30					some iron staining
40					becomes reddish-orange to yellow-orange with random black staining
					Interlayered brown and gray clay
50					

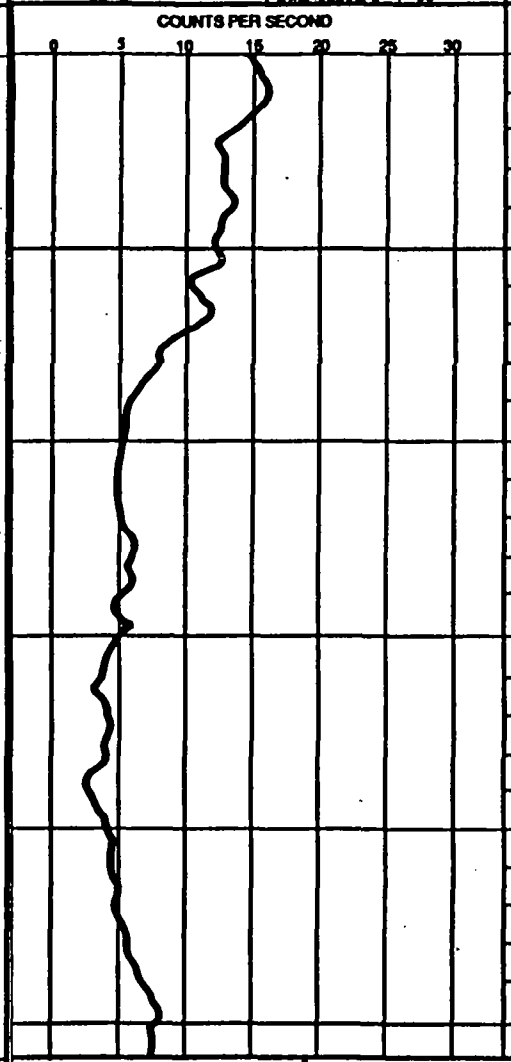
WELL CONSTRUCTION DETAILS



Log continued on page 2

GAMMA RAY LOG

Counts per second/ Division = 5	Casing type: 2" Stainless Steel
Displacement = 0	Top of log = Ground surface
Rate of logging = 15 ft/min.	Date logged: 5 - 4 - 88



Depth (feet)	Relative % Clay	NOTES
0		Ground surface
	50	SILTS AND CLAYS
	57	
10	34	
	14	Top of silty sand
20	14	Top of sand with little silt
	12	
30	9	SANDS
	9	
40	13	
	22	
50		

*Based on information provided by R.F. Weston, Inc., and comparison with adjacent borings.

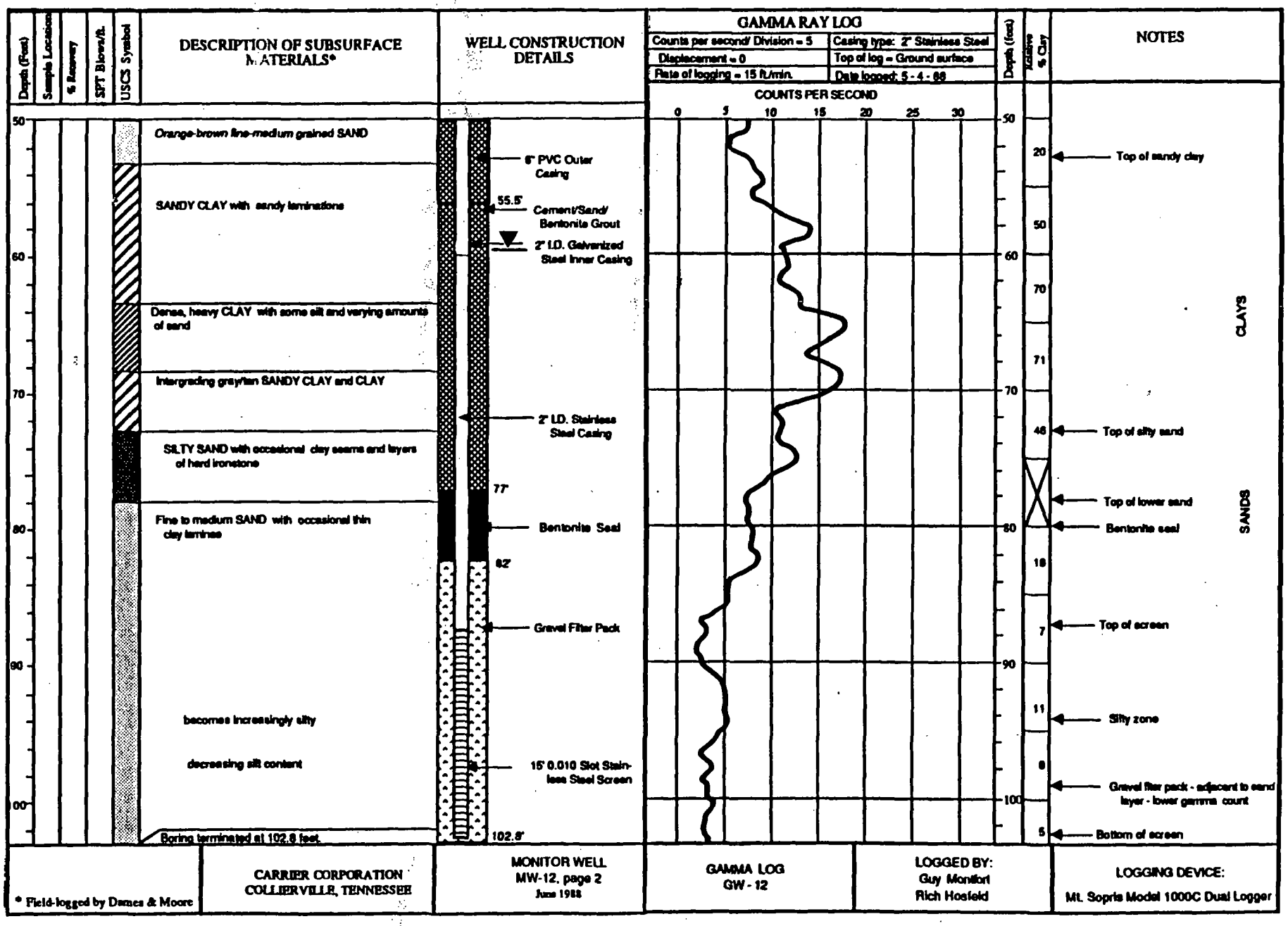
CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

MONITOR WELL
MW-12, page 1
June 1988

GAMMA LOG
GW - 12

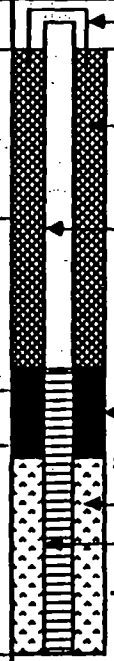
LOGGED BY:
Guy Montfort
Rich Hosfeld

LOGGING DEVICE:
Mt. Sopris Model 1000C Dual Logger


Depth (Feet)
Sample Location
% Recovery
SPT Blows/ft.
USCS Symbol
DESCRIPTION OF SUBSURFACE MATERIALS*
WELL CONSTRUCTION DETAILS
GAMMA RAY LOG
Counts per second/ Division = 5
Casing type: 2" Stainless Steel
Displacement = 0
Top of log = Ground surface
Rate of logging = 15 ft/min.
Date logged: 5 - 4 - 88
COUNTS PER SECOND
0 5 10 15 20 25 30
Relative % Clay
NOTES
50
60
70
80
90
100
Orange-brown fine-medium grained SAND
SANDY CLAY with sandy laminations
Dense, heavy CLAY with some silt and varying amounts of sand
Intergrading gray/tan SANDY CLAY and CLAY
SILTY SAND with occasional clay seams and layers of hard ironstone
Fine to medium SAND with occasional thin clay laminae
becomes increasingly silty
decreasing silt content
Boring terminated at 102.8 feet.
6" PVC Outer Casing
55.5'
Cement/Sand/ Bentonite Grout
2" I.D. Galvanized Steel Inner Casing
2" I.D. Stainless Steel Casing
77'
Bentonite Seal
82'
Gravel Filter Pack
15' 0.010 Slot Stainless Steel Screen
102.8'
20
50
70
71
46
18
7
11
8
5
Top of sandy clay
Top of silty sand
Top of lower sand
Bentonite seal
Top of screen
Silty zone
Gravel filter pack - adjacent to sand layer - lower gamma count
Bottom of screen
CLAYS
SANDS
* Field-logged by Dames & Moore
CARRIER CORPORATION
COLLIERVILLE, TENNESSEE
MONITOR WELL
MW-12, page 2
June 1988
GAMMA LOG
GW - 12
LOGGED BY:
Guy Montfort
Rich Hosfeld
LOGGING DEVICE:
Mt. Sopris Model 1000C Dual Logger

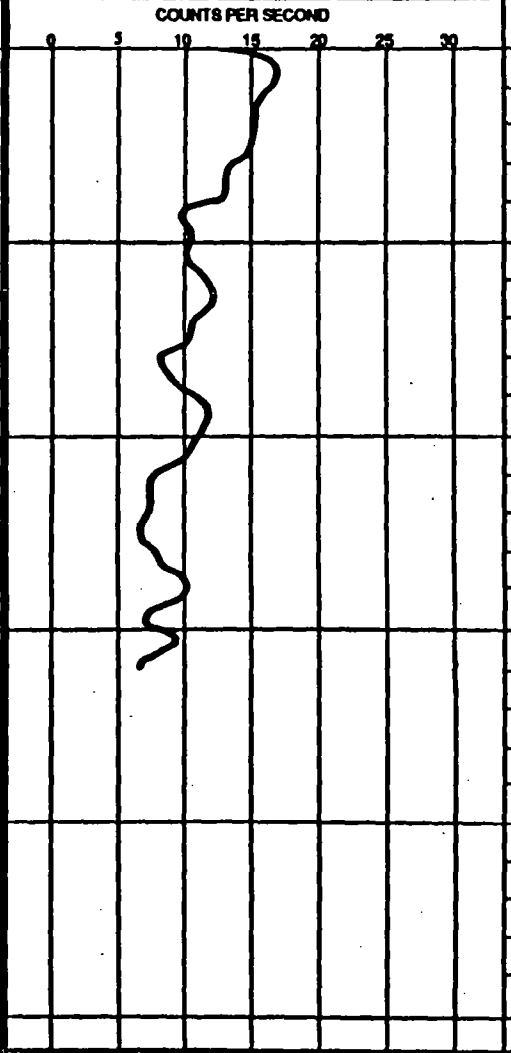
Depth (Feet)	Sample Location	% Recovery	Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*
					Top of Casing Elevation = 342.82 feet (msl)
					Ground Surface Elevation = 340.27 feet (msl)
0					CLAYEY SILT with occasional zones of clay with little or no silt
10					Silty/sandy CLAY with varying amounts of silt and sand
					CLAYEY SILT, less clay than above
20					Clayey/silty SAND with some fine gravel; saturated
					occasional clay-rich zones
30					Boring terminated at 31.2 feet.
40					
50					

WELL CONSTRUCTION DETAILS



GAMMA RAY LOG

Counts per second/ Division = 5	Casing type: 2" Stainless Steel
Displacement = 0	Top of log = Ground surface
Rate of logging = 15 ft/min.	Date logged: 5 - 5 - 88



Depth (feet)	Volume % Clay	NOTES	
0	82	Ground surface	CLAYS AND SILTS
	47		
10	47	Occasional zones of clay with very little silt or sand	
	40	Top of screen	
		Bentonite seal	
20	22	Top of sand	
	35		SANDS
30		Bottom of screen	
40			
50			

* Based on information provided by R.F. Weston, Inc.

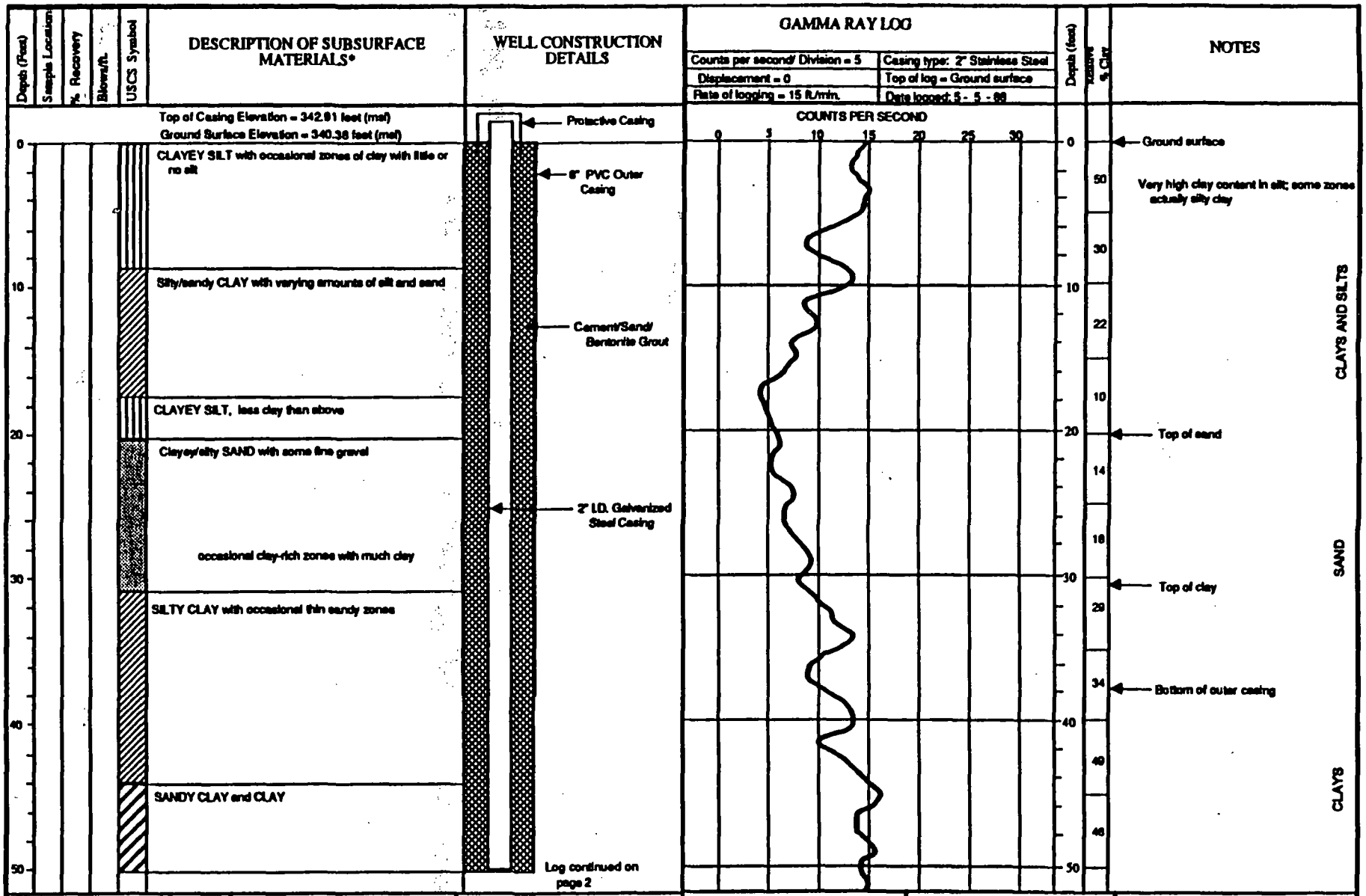
CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

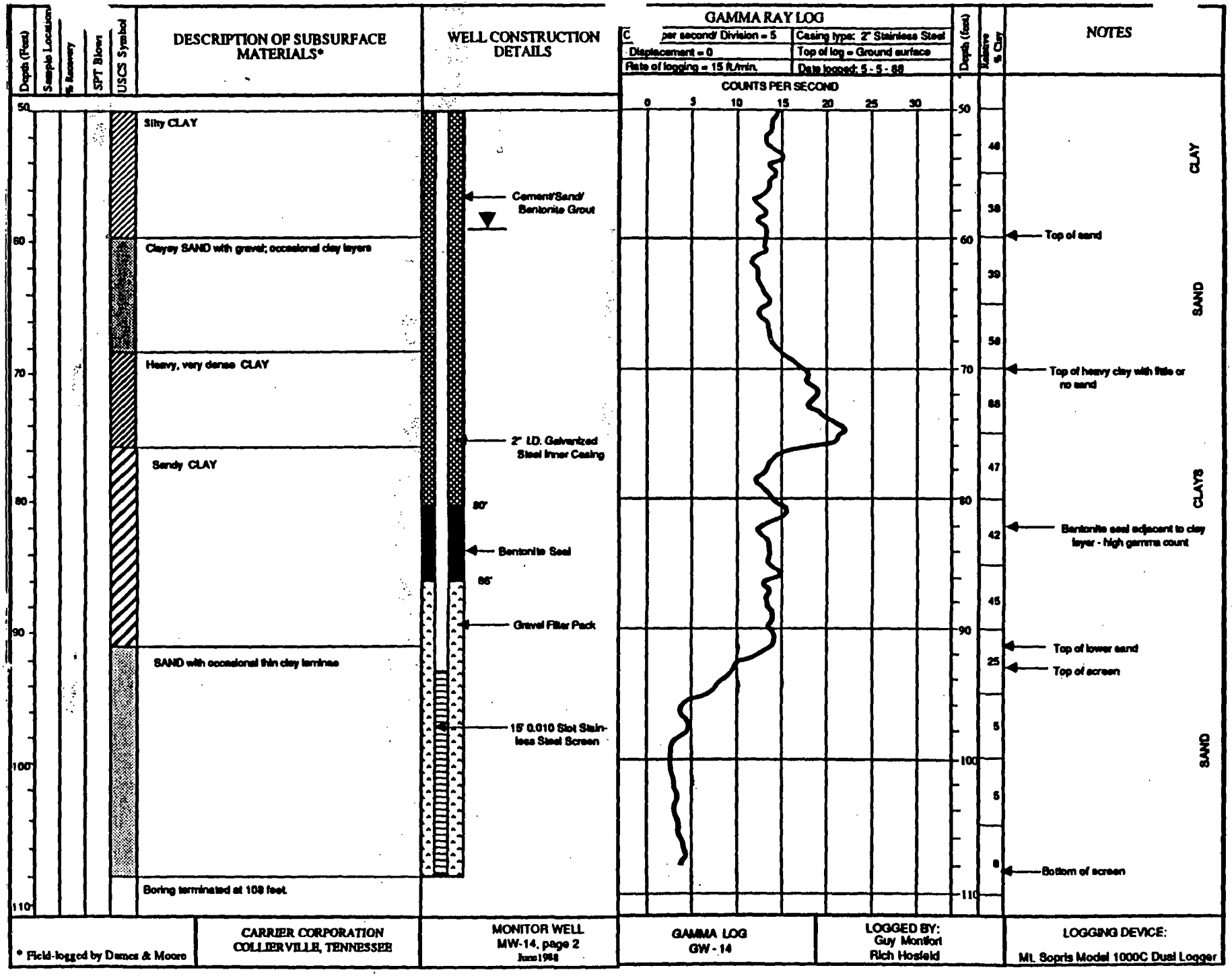
MONITOR WELL
MW-13
June 1988

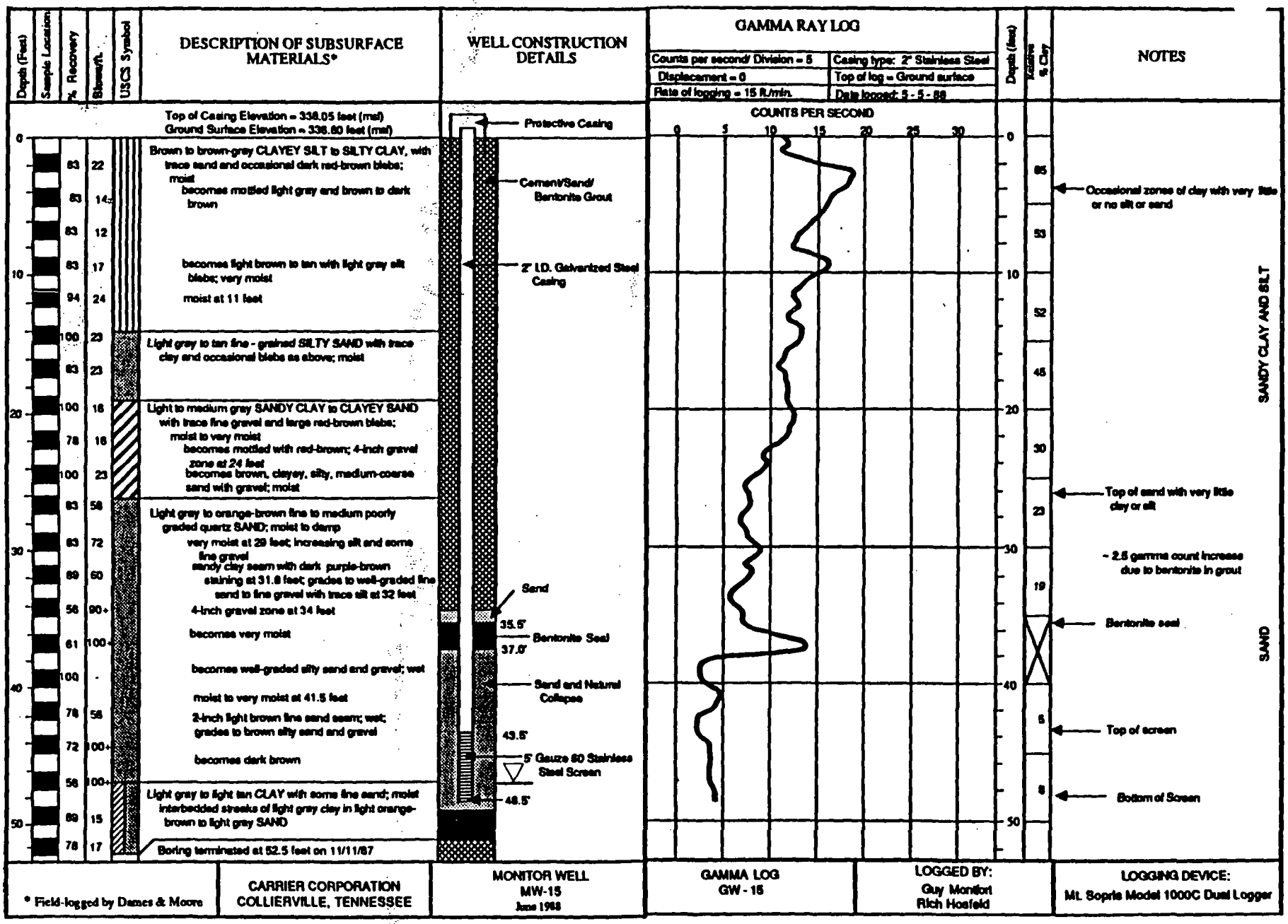
GAMMA LOG
GW- 13

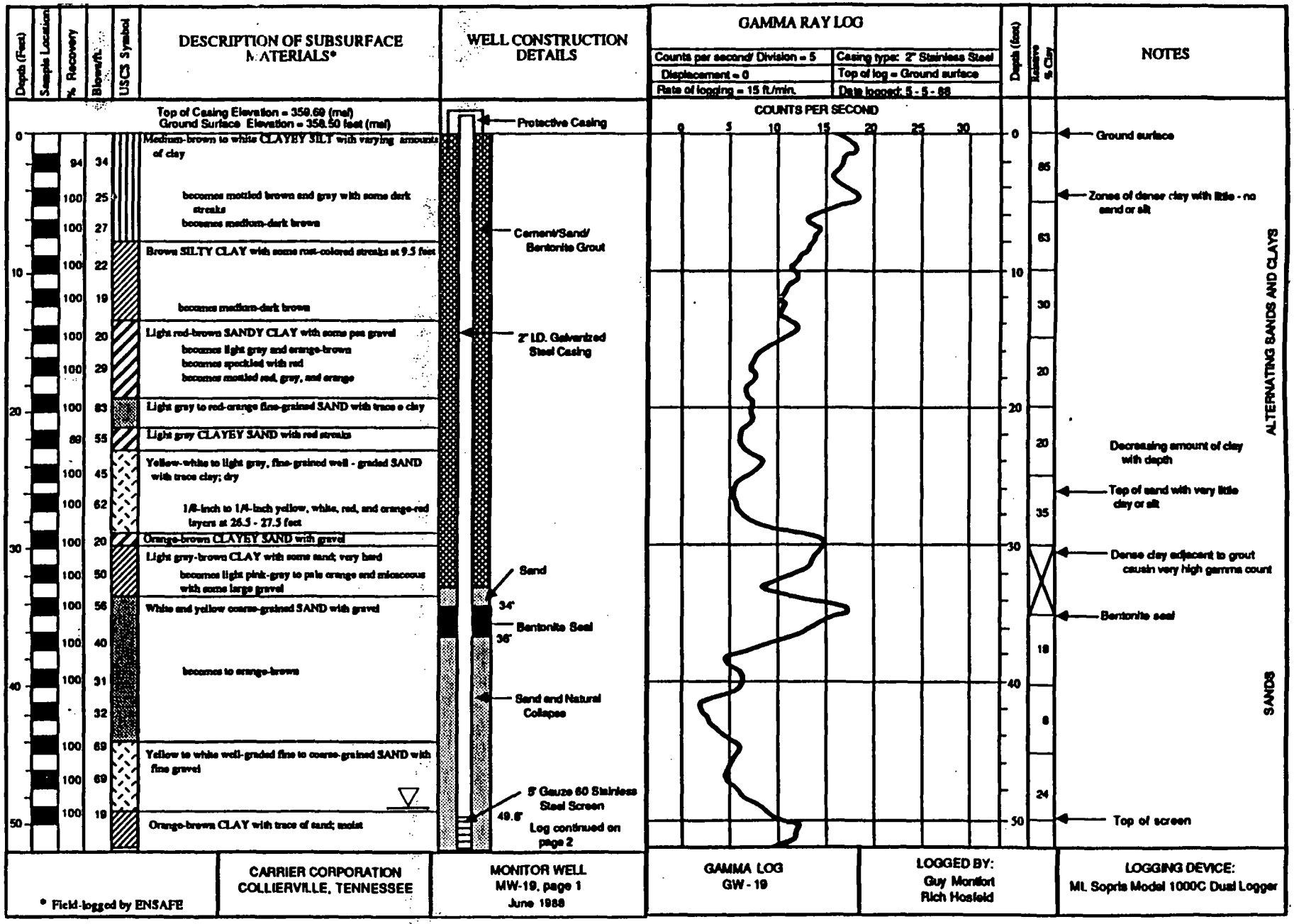
LOGGED BY:
Guy Montfort
Rich Hosfeld

LOGGING DEVICE:
Mt. Sopris Model 1000C Dual Logger


Depth (Feet)
Sample Location
% Recovery
Blows/ft.
USCS Symbol
DESCRIPTION OF SUBSURFACE MATERIALS*
WELL CONSTRUCTION DETAILS
GAMMA RAY LOG
Counts per second/ Division = 5
Casing type: 2" Stainless Steel
Displacement = 0
Top of log = Ground surface
Rate of logging = 15 ft/min.
Date logged: 5 - 5 - 88
COUNTS PER SECOND
0 5 10 15 20 25 30
Depth (feet)
% Clay
NOTES
Top of Casing Elevation = 342.91 feet (msl)
Ground Surface Elevation = 340.38 feet (msl)
CLAYEY SILT with occasional zones of clay with little or no silt
Silty/sandy CLAY with varying amounts of silt and sand
CLAYEY SILT, less clay than above
Clayey/silty SAND with some fine gravel
occasional clay-rich zones with much clay
SILTY CLAY with occasional thin sandy zones
SANDY CLAY and CLAY
Protective Casing
8" PVC Outer Casing
Cement/Sand/ Bentonite Grout
2" I.D. Galvanized Steel Casing
Log continued on page 2
Ground surface
Very high clay content in silt; some zones actually silty clay
Top of sand
Top of clay
Bottom of outer casing
CLAYS AND SILTS
SAND
CLAYS
*Based on information provided by R.F. Weston, Inc., and comparison with adjacent borings.
CARRIER CORPORATION
COLLIERVILLE, TENNESSEE
MONITOR WELL
MW-14, page 1
June 1988
GAMMA LOG
GW - 14
LOGGED BY:
Guy Montfort
Rich Hosfeld
LOGGING DEVICE:
Mt. Sopris Model 1000C Dual Logger


Depth (Feet)
Sample Location
% Recovery
SPT Blows
USCS Symbol
DESCRIPTION OF SUBSURFACE MATERIALS*
WELL CONSTRUCTION DETAILS
GAMMA RAY LOG
per second/ Division = 5
Displacement = 0
Rate of logging = 15 ft/min.
Casing type: 2" Stainless Steel
Top of log = Ground surface
Date logged: 5 - 5 - 88
COUNTS PER SECOND
0 5 10 15 20 25 30
Depth (feet)
Relative % Clay
NOTES
50
60
70
80
90
100
110
Silty CLAY
Clayey SAND with gravel; occasional clay layers
Heavy, very dense CLAY
Sandy CLAY
SAND with occasional thin clay laminae
Boring terminated at 108 feet.
Cement/Sand/ Bentonite Grout
2" I.D. Galvanized Steel Inner Casing
80'
Bentonite Seal
86'
Gravel Filter Pack
15' 0.010 Slot Stainless Steel Screen
46
38
39
58
88
47
42
45
25
5
5
8
Top of sand
Top of heavy clay with little or no sand
Bentonite seal adjacent to clay layer - high gamma count
Top of lower sand
Top of screen
Bottom of screen
CLAY
SAND
CLAYS
SAND
* Field-logged by Dames & Moore
CARRIER CORPORATION
COLLIERVILLE, TENNESSEE
MONITOR WELL
MW-14, page 2
June 1988
GAMMA LOG
GW - 14
LOGGED BY:
Guy Montfort
Rich Hosfeld
LOGGING DEVICE:
Mt. Sopris Model 1000C Dual Logger


Depth (Feet)
Sample Location
% Recovery
Blows/ft.
USCS Symbol
DESCRIPTION OF SUBSURFACE MATERIALS*
Top of Casing Elevation = 338.05 feet (msl)
Ground Surface Elevation = 336.80 feet (msl)
Brown to brown-gray CLAYEY SILT to SILTY CLAY, with trace sand and occasional dark red-brown blebs; moist
becomes mottled light gray and brown to dark brown
becomes light brown to tan with light gray silt blebs; very moist
moist at 11 feet
Light gray to tan fine - grained SILTY SAND with trace clay and occasional blebs as above; moist
Light to medium gray SANDY CLAY to CLAYEY SAND with trace fine gravel and large red-brown blebs; moist to very moist
becomes mottled with red-brown; 4-inch gravel zone at 24 feet
becomes brown, clayey, silty, medium-coarse sand with gravel; moist
Light gray to orange-brown fine to medium poorly graded quartz SAND; moist to damp
very moist at 29 feet; increasing silt and some fine gravel
sandy clay seam with dark purple-brown staining at 31.8 feet; grades to well-graded fine sand to fine gravel with trace silt at 32 feet
4-inch gravel zone at 34 feet
becomes very moist
becomes well-graded silty sand and gravel; wet
moist to very moist at 41.5 feet
2-inch light brown fine sand seam; wet; grades to brown silty sand and gravel
becomes dark brown
Light gray to light tan CLAY with some fine sand; moist interbedded streaks of light gray clay in light orange-brown to light gray SAND
Boring terminated at 52.5 feet on 11/11/87
WELL CONSTRUCTION DETAILS
Protective Casing
Cement/Sand/ Bentonite Grout
2" I.D. Galvanized Steel Casing
Sand
35.5'
Bentonite Seal
37.0'
Sand and Natural Collapse
43.5'
5' Gauze 60 Stainless Steel Screen
48.5'
GAMMA RAY LOG
Counts per second/ Division = 5
Casing type: 2" Stainless Steel
Displacement = 0
Top of log = Ground surface
Rate of logging = 15 ft./min.
Date logged: 5 - 5 - 88
COUNTS PER SECOND
Depth (feet)
Relative % Clay
NOTES
Occasional zones of clay with very little or no silt or sand
Top of sand with very little clay or silt
~ 2.5 gamma count increase due to bentonite in grout
Bentonite seal
Top of screen
Bottom of Screen
SANDY CLAY AND SILT
SAND
* Field-logged by Dames & Moore
CARRIER CORPORATION
COLLIERVILLE, TENNESSEE
MONITOR WELL
MW-15
June 1988
GAMMA LOG
GW - 15
LOGGED BY:
Guy Montfort
Rich Hosfeld
LOGGING DEVICE:
Mt. Soprie Model 1000C Dual Logger


Depth (Feet)
Sample Location
% Recovery
Blows/ft.
USCS Symbol
DESCRIPTION OF SUBSURFACE MATERIALS*
WELL CONSTRUCTION DETAILS
GAMMA RAY LOG
Counts per second/ Division = 5
Casing type: 2" Stainless Steel
Displacement = 0
Top of log = Ground surface
Rate of logging = 15 ft/min.
Date logged: 5 - 5 - 88
COUNTS PER SECOND
Relative % Clay
NOTES
Top of Casing Elevation = 358.69 (msl)
Ground Surface Elevation = 358.50 feet (msl)
Medium-brown to white CLAYEY SILT with varying amounts of clay
becomes mottled brown and gray with some dark streaks
becomes medium-dark brown
Brown SILTY CLAY with some rust-colored streaks at 9.5 feet
becomes medium-dark brown
Light red-brown SANDY CLAY with some pea gravel
becomes light gray and orange-brown
becomes speckled with red
becomes mottled red, gray, and orange
Light gray to red-orange fine-grained SAND with trace o clay
Light gray CLAYEY SAND with red streaks
Yellow-white to light gray, fine-grained well - graded SAND with trace clay; dry
1/8-inch to 1/4-inch yellow, white, red, and orange-red layers at 26.5 - 27.5 feet
Orange-brown CLAYEY SAND with gravel
Light gray-brown CLAY with some sand; very hard
becomes light pink-gray to pale orange and micaceous with some large gravel
White and yellow coarse-grained SAND with gravel
becomes to orange-brown
Yellow to white well-graded fine to coarse-grained SAND with fine gravel
Orange-brown CLAY with trace of sand; moist
Protective Casing
Cement/Sand/ Bentonite Grout
2" I.D. Galvanized Steel Casing
Sand
34'
Bentonite Seal
36'
Sand and Natural Collapse
5' Gauze 60 Stainless Steel Screen
49.5'
Log continued on page 2
Ground surface
Zones of denser clay with little - no sand or silt
Decreasing amount of clay with depth
Top of sand with very little clay or silt
Dense clay adjacent to grout causin very high gamma count
Bentonite seal
Top of screen
ALTERNATING BANDS AND CLAYS
SANDS
* Field-logged by ENSAFE
CARRIER CORPORATION
COLLIERVILLE, TENNESSEE
MONITOR WELL
MW-19, page 1
June 1988
GAMMA LOG
GW - 19
LOGGED BY:
Guy Montfort
Rich Hosfeld
LOGGING DEVICE:
Mt. Sopris Model 1000C Dual Logger

Depth (Feet)	Sample Location	% Recovery	Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS*	WELL CONSTRUCTION DETAILS	GAMMA RAY LOG	Depth (feet)	Relative % Clay	NOTES
50					Orange - brown CLAY with trace of sand; moist	5' Gauge 60 Stainless Steel Screen	Counts per second/ Division = 5; Displacement = 0; Rate of logging = 15 ft/min.; Casing type: 2" Stainless Steel; Top of log = Ground surface; Date logged: 5 - 5 - 88	50	33	Natural sand collapse - adjacent to clay layer - higher gamma count
		100	13		becomes mottled brown and gray					Bottom of screen
					Boring terminated at 54 feet (sampled to 55.5 feet) on 11/25/87.					CLAY
60								60		
70								70		
80								80		
90								90		
100								100		

COUNTS PER SECOND: 0, 5, 10, 15, 20, 25, 30

* Field-logged by ENSAFE

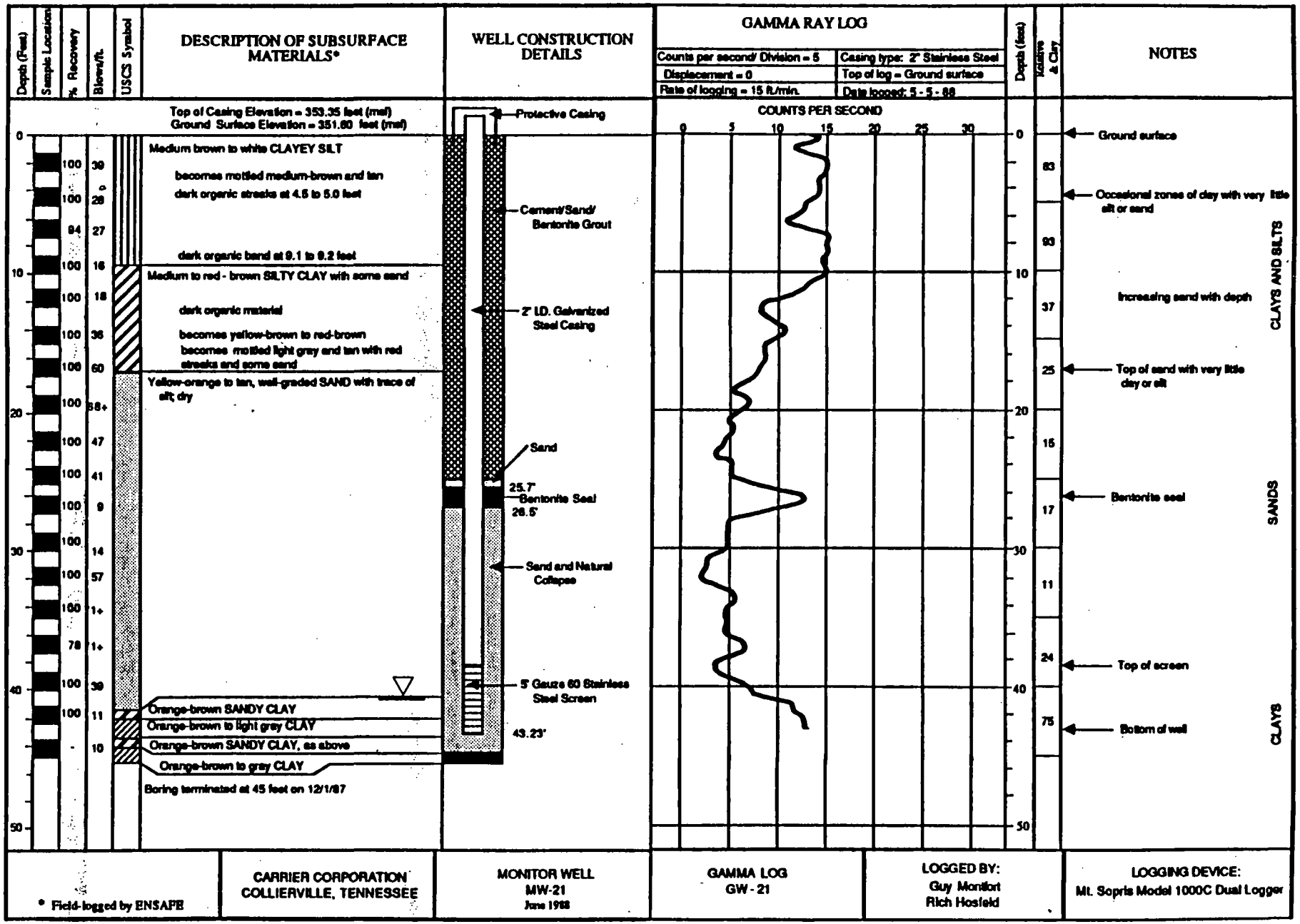
CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

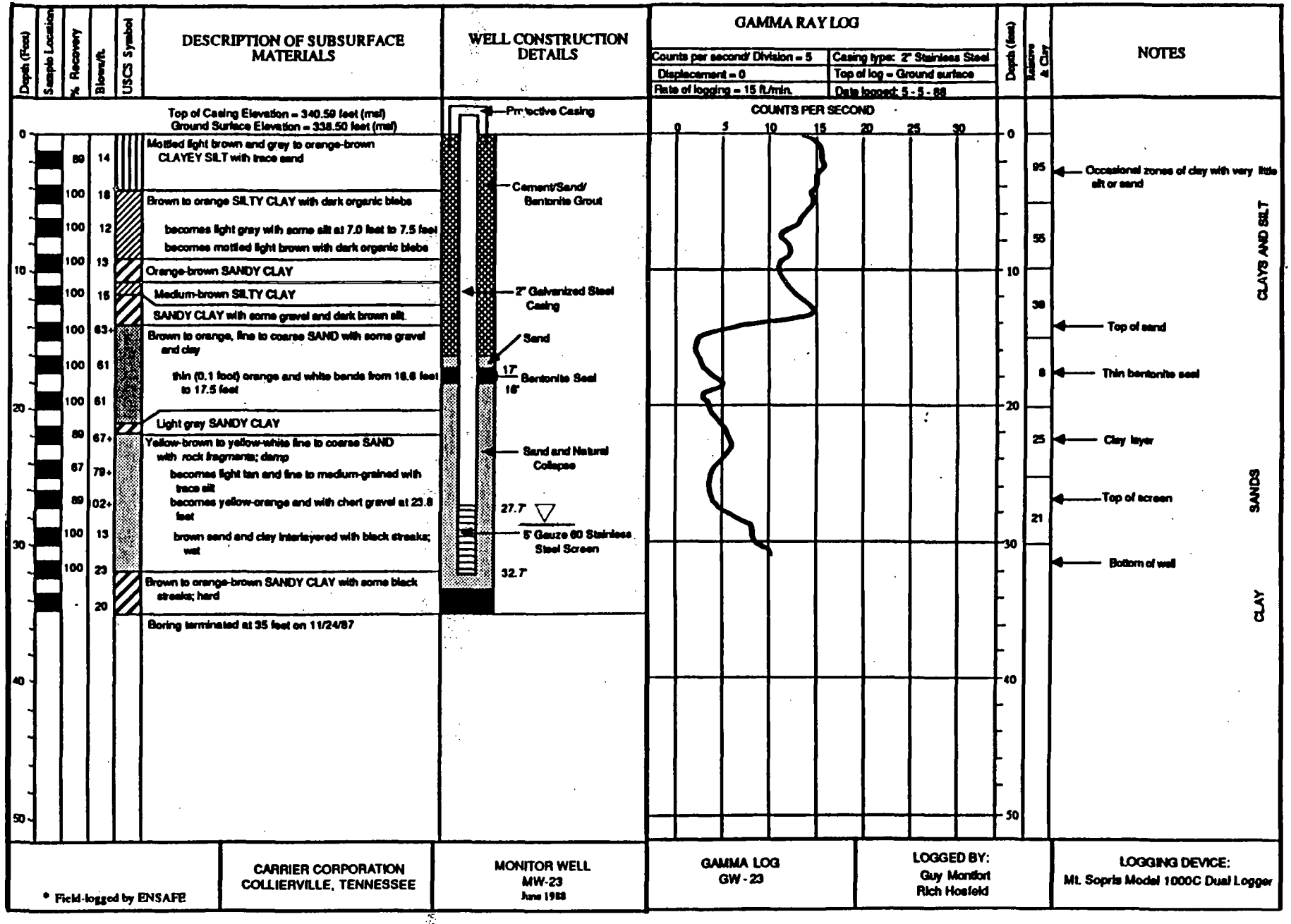
MONITOR WELL
MW-19, page 2
June 1988

GAMMA LOG
GW - 19

LOGGED BY:
Guy Montfort
Rich Hosfeld

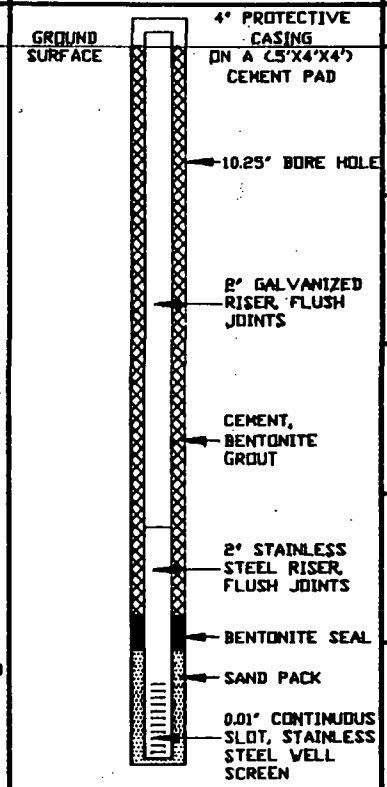
LOGGING DEVICE:
Mt. Sopris Model 1000C Dual Logger


Depth (Feet)
Sample Location
% Recovery
Blows/ft.
USCS Symbol
DESCRIPTION OF SUBSURFACE MATERIALS*
WELL CONSTRUCTION DETAILS
GAMMA RAY LOG
Counts per second/ Division = 5
Casing type: 2" Stainless Steel
Displacement = 0
Top of log = Ground surface
Rate of logging = 15 ft/min.
Date logged: 5 - 5 - 88
COUNTS PER SECOND
Kaolinite & Clay
NOTES
Top of Casing Elevation = 353.35 feet (msl)
Ground Surface Elevation = 351.60 feet (msl)
Medium brown to white CLAYEY SILT
becomes mottled medium-brown and tan
dark organic streaks at 4.5 to 5.0 feet
dark organic band at 9.1 to 9.2 feet
Medium to red - brown SILTY CLAY with some sand
dark organic material
becomes yellow-brown to red-brown
becomes mottled light gray and tan with red streaks and some sand
Yellow-orange to tan, well-graded SAND with trace of silt; dry
Orange-brown SANDY CLAY
Orange-brown to light gray CLAY
Orange-brown SANDY CLAY, as above
Orange-brown to gray CLAY
Boring terminated at 45 feet on 12/1/87
Protective Casing
Cement/Sand/ Bentonite Grout
2" I.D. Galvanized Steel Casing
Sand
25.7'
Bentonite Seal
26.5'
Sand and Natural Collapse
5' Gauze 60 Stainless Steel Screen
43.23'
Ground surface
Occasional zones of clay with very little silt or sand
Increasing sand with depth
Top of sand with very little clay or silt
Bentonite seal
Top of screen
Bottom of well
CLAYS AND SILTS
SANDS
CLAYS
* Field-logged by ENSAFE
CARRIER CORPORATION
COLLIERVILLE, TENNESSEE
MONITOR WELL
MW-21
June 1988
GAMMA LOG
GW - 21
LOGGED BY:
Guy Monfort
Rich Hosfeld
LOGGING DEVICE:
Mt. Sopris Model 1000C Dual Logger


Depth (Feet)
Sample Location
% Recovery
Blows/ft.
USCS Symbol
DESCRIPTION OF SUBSURFACE MATERIALS
WELL CONSTRUCTION DETAILS
GAMMA RAY LOG
Counts per second/ Division = 5
Casing type: 2" Stainless Steel
Displacement = 0
Top of log = Ground surface
Rate of logging = 15 ft/min.
Date logged: 5 - 5 - 88
Depth (feet)
Relative % Clay
NOTES
Top of Casing Elevation = 340.59 feet (msl)
Ground Surface Elevation = 338.50 feet (msl)
Protective Casing
Mottled light brown and gray to orange-brown CLAYEY SILT with trace sand
Brown to orange SILTY CLAY with dark organic blebs
becomes light gray with some silt at 7.0 feet to 7.5 feet
becomes mottled light brown with dark organic blebs
Orange-brown SANDY CLAY
Medium-brown SILTY CLAY
SANDY CLAY with some gravel and dark brown silt.
Brown to orange, fine to coarse SAND with some gravel and clay
thin (0.1 foot) orange and white bands from 16.6 feet to 17.5 feet
Light gray SANDY CLAY
Yellow-brown to yellow-white fine to coarse SAND with rock fragments; damp
becomes light tan and fine to medium-grained with trace silt
becomes yellow-orange and with chert gravel at 23.8 feet
brown sand and clay interlayered with black streaks; wet
Brown to orange-brown SANDY CLAY with some black streaks; hard
Boring terminated at 35 feet on 11/24/87
Cement/Sand/ Bentonite Grout
2" Galvanized Steel Casing
Sand
17'
Bentonite Seal
16'
Sand and Natural Collapse
27.7'
5' Gauze 60 Stainless Steel Screen
32.7'
COUNTS PER SECOND
0 5 10 15 20 25 30
Occasional zones of clay with very little silt or sand
Top of sand
Thin bentonite seal
Clay layer
Top of screen
Bottom of well
CLAYS AND SILT
SANDS
CLAY
* Field-logged by ENSAFE
CARRIER CORPORATION
COLLIERVILLE, TENNESSEE
MONITOR WELL
MW-23
June 1988
GAMMA LOG
GW - 23
LOGGED BY:
Guy Montfort
Rich Hosfeld
LOGGING DEVICE:
Mt. Sopris Model 1000C Dual Logger

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	DESCRIPTION OF SUBSURFACE MATERIALS
5	SS	83	25	BROWN TO TAN SANDY SILT, TRACE OF CLAY ROCK FRAGMENTS APPROXIMATELY 7.0 FT.
10				
15	SS	83	48	BROWN SILTY CLAY, SOME ORGANIC STREAKS, @ 13.1' BECOMES ORANGE TO RUST COLORED FINE TO MEDIUM GRAINED SAND.
	SS	42	66	GRADATIONAL BANDS OF WHITE & RUST SAND, MEDIUM TO FINE GRAINED W/ ABUNDANT GRAVEL.
20	SS	88	55	ORANGE TO RUST SAND & GRAVEL SOME IRON @ APPROXIMATELY 23.5 FT.
25				
30	SS	79	25	ORANGE, MEDIUM GRAINED, MODERATELY SORTED MOIST SAND, GRAVEL FRAGMENTS, IRON @ APPROXIMATELY 31.0 FT.
35				
40	SS	100	74	38.0~38.6 FT. MEDIUM GRAINED ORANGE SAND & GRAVEL, POORLY SORTED. 38.6~39.0 FT. LT. TAN WELL SORTED FINE TO MEDIUM GRAINED SAND, MOIST. 39.0~40.0 FT. ORANGE WELL SORTED FINE GRAINED SAND
45	SS	83	17	FINE TO MEDIUM GRAINED MODERATELY SORTED SAND, RUST TO BROWN COLOR, @ 47.6 FT. BECOMES SANDY CLAY W/ SOME ROCK FRAGMENTS, @ 47.9 FT. CLAY-TIGHT-GRAY & MAROON-TYPICAL OF JACKSON CLAY.
50				
55				BORING TERMINATED @ 48.0 FT. AND WELL SET @ 47.9 FT. HOLE BACKFILLED W/ EPA APPROVED CEMENT, BENTONITE GROUT TO SURFACE.
60				

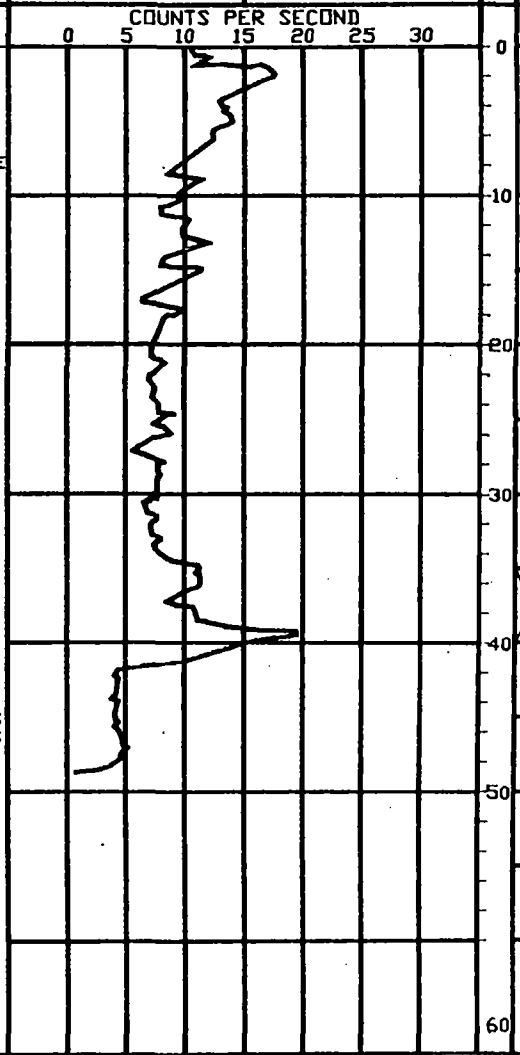
WELL CONSTRUCTION DETAILS



NOTE:
WELL IS DRY

GAMMA RAY LOG

COUNTS PER SECOND/DIVISION = 5	CASING TYPE: 2" STAINLESS AND GALVANIZED STEEL
DISPLACEMENT = 0	TOP OF LOG = GROUND SURFACE
RATE OF LOGGING = 15 FT/MIN.	DATE LOGGED: 09/13/90



RELATIVE % CLAY	NOTES
75	INCREASED CLAY CONTENT
43	
38	
29	
27	DECREASING CLAY CONTENT WITH DEPTH
24	
30	
	BENTONITE SEAL
13	SCREEN
11	

Environmental and Safety Designs, Inc.
EN SAFE®
5724 SUMMERTREES DR. MEMPHIS, TN. 38134 (901)372-7962

MW-25
COLLIERVILLE SITE
COLLIERVILLE, TN.

DWG DATE: 02/20/91 | DWG NAME: CARGRL25

GAMMA LOG MW-25

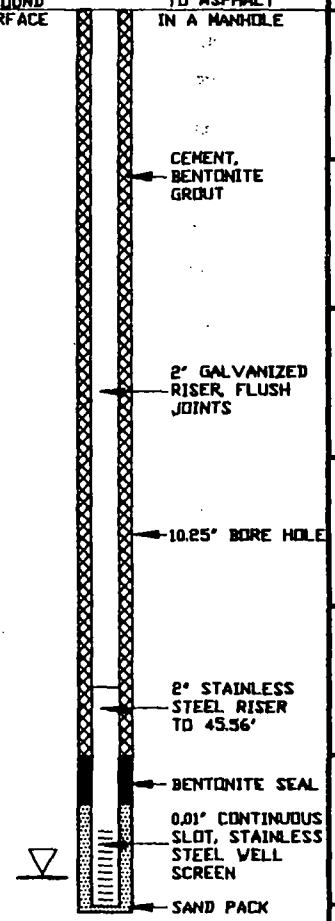
LOGGED BY: GUY MONTFORT

LOGGING DEVICE: MT. SOPRIS MODEL 1000C DUAL LOGGER

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	USCS SYMBOL	DESCRIPTION OF SUBSURFACE MATERIALS
					SURFACE: ASPHALT PARKING LOT
5	SS	100	13	CL	BROWN-GRAY MOTTLED SILTY CLAY.
10	SS	90	12	CL	MORE CLAY AND IRON STAINING.
15	SS	100	27	SM	LIGHT BROWN-GRAY MOTTLED SANDY SILT.
20	SS	100	40	SM	ORANGE-LIGHT BROWN SANDY SILT.
25	SS	95	40	SW	BROWN SILTY FINE SAND W/ GRAVEL.
30	SS	95	40	SW	BROWN SILTY FINE TO MEDIUM GRAINED SAND W/ GRAVEL & IRON STAINING.
35	SS	100	38	SW	BROWN FINE TO MEDIUM GRAINED SAND W/ ROCK FRAGMENTS.
40	SS	80	68	SW	BROWN FINE TO MEDIUM GRAINED SAND W/ ROCK FRAGMENTS.
45	SS	90	62	SW	BROWN FINE TO MEDIUM GRAINED SAND W/ GRAVEL.
50	SS	95	100	SW	BROWN FINE TO MEDIUM GRAINED SAND W/ GRAVEL.
55	SS	80	74	SW	BROWN FINE TO MEDIUM GRAINED SAND W/ GRAVEL.
60	SS	100	11	CL	LIGHT GRAY SILTY CLAY.

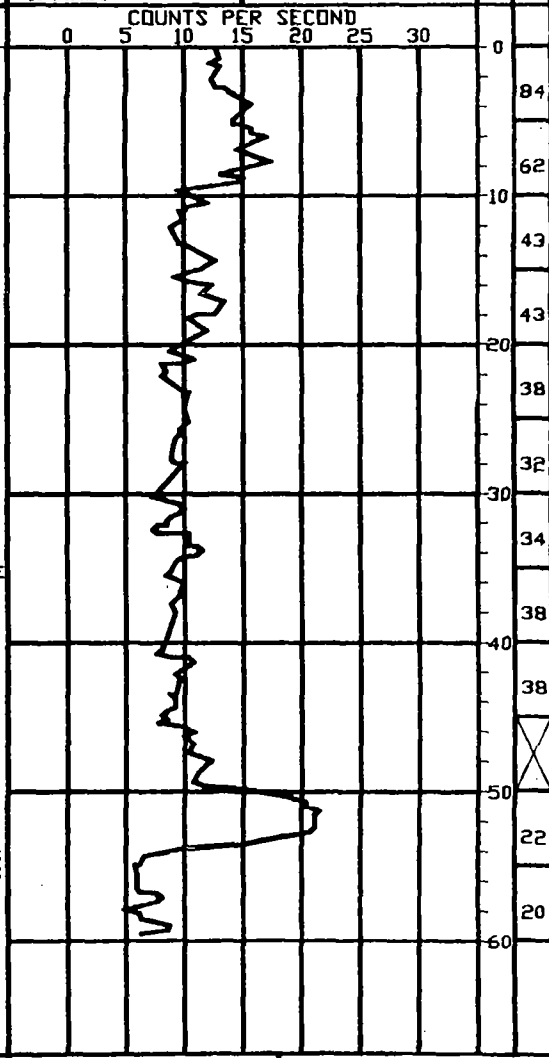
BORING TERMINATED @ 60.6' AND WELL SET @ 60.56' ON 8/14/90.

WELL CONSTRUCTION DETAILS



GAMMA RAY LOG

COUNTS PER SECOND/DIVISION = 5
DISPLACEMENT = 0
RATE OF LOGGING = 10 FT/MIN.
CASING TYPE: 2" STAINLESS AND GALVANIZED STEEL
TOP OF LOG = GROUND SURFACE
DATE LOGGED: 09/13/90



RELATIVE % CLAY	NOTES
84	ZONES OF CLAY WITH LITTLE SILT
62	
43	
43	
38	DECREASING CLAY CONTENT WITH DEPTH
32	
34	
38	
38	
	BENTONITE SEAL
22	SCREEN
20	BENTONITE SEAL

Environmental and Safety Designs, Inc.

EN SAFE®

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MW-27

COLLIERVILLE SITE
COLLIERVILLE, TN.

DWG DATE: 02/20/91 | DWG NAME: CARGRL27

GAMMA LOG MW-27

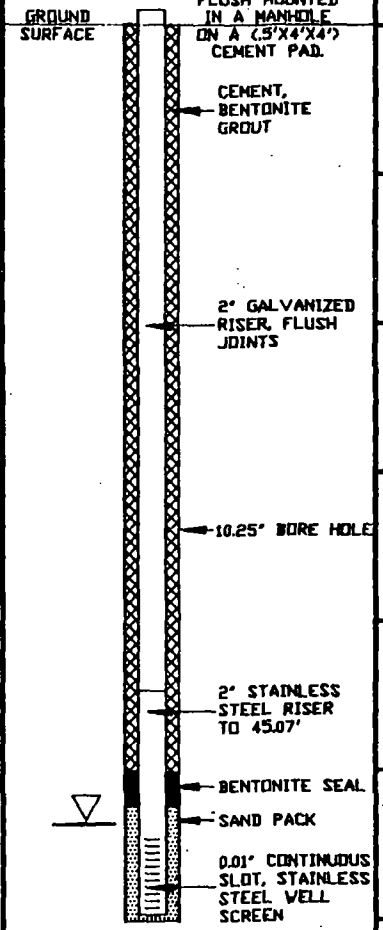
LOGGED BY: GUY MONTFORT

LOGGING DEVICE: MT. SOPRIS MODEL 1000C DUAL LOGGER

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	USCS SYMBOL	DESCRIPTION OF SUBSURFACE MATERIALS
5	SS	85	18	SM	BROWN-LIGHT GRAY MOTTLED SILTY SAND
10	SS	90	15	SM	BROWN-LIGHT GRAY MOTTLED SANDY SILT
15	SS	90	13	SM	SAME W/ IRON STAINING
20	SS	100	20	SM	GRAY SANDY SILT W/ IRON STAINING
25	SS	90	22	SM	BROWN SILTY SAND W/ IRON STAINING & PEBBLES
30	SS	80	50	SW	MEDIUM GRAY-ORANGE BROWN SAND W/ PEBBLES
35	SS	90	102	SW	SAME W/ IRON STAINING & ROCK FRAGMENTS, MOIST IN LAST 0.25'
40	SS	90	60	SW	SAME BUT MOIST @ 38.65'
45	SS	90	74	SW	SAME W/ DARK ORGANIC MOTTLING
50	SS	100	120	SW	SAME BUT MOIST @ 49.5'
55	SS	95	39	GW	BROWN MEDIUM TO COARSE SAND W/ ABUNDANT ROCK FRAGMENTS, WET
60	SS	100	56	SW	BROWN-WHITE FINE TO COARSE GRAINED SAND W/ A FEW ROCK FRAGMENTS, WET

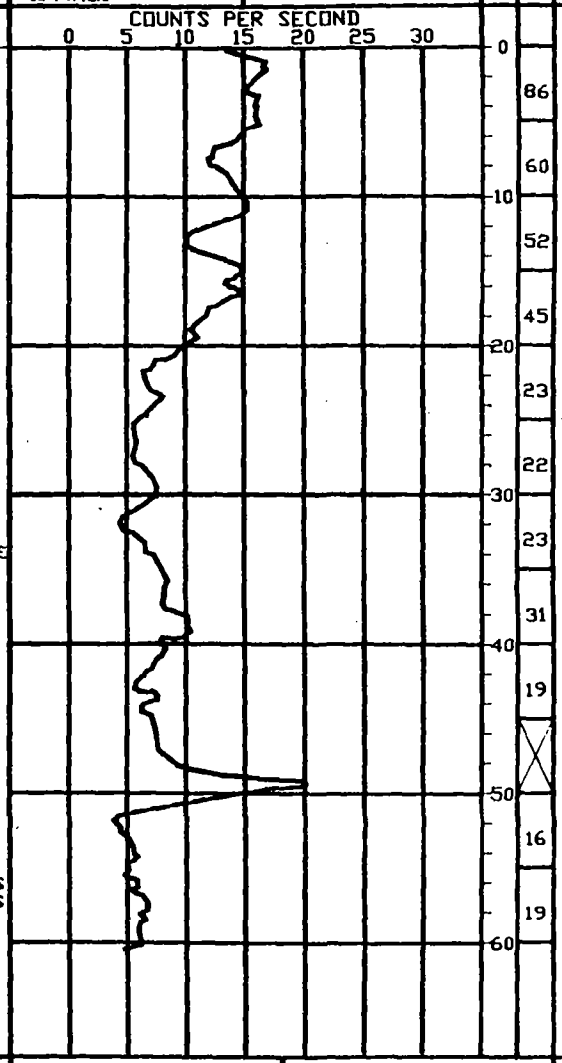
BORING TERMINATED @ 60.10' AND WELL SET @ 60.07' ON 8/16/90.

WELL CONSTRUCTION DETAILS



GAMMA RAY LOG

COUNTS PER SECOND/DIVISION = 5	CASING TYPE: 2" STAINLESS AND GALVANIZED STEEL
DISPLACEMENT = 0	TOP OF LOG = GROUND SURFACE
RATE OF LOGGING = 15 FT/MIN.	DATE LOGGED: 09/13/90



RELATIVE % CLAY	NOTES
86	INCREASED CLAY CONTENT
60	
52	
45	
23	
22	DECREASING CLAY CONTENT WITH DEPTH
23	
31	
19	
	BENTONITE SEAL
16	SCREEN
19	

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MW-29

COLLIERVILLE SITE
COLLIERVILLE, TN.

DWG DATE: 02/20/91 | DWG NAME: CARGRL29

GAMMA LOG MW-29

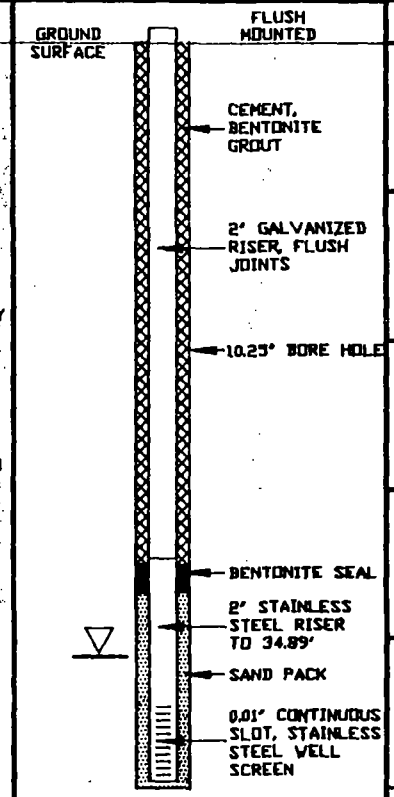
LOGGED BY: GUY MONTFORT

LOGGING DEVICE: MT, SOPRIS MODEL 1000C DUAL LOGGER

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	USCS SYMBOL	DESCRIPTION OF SUBSURFACE MATERIALS
5	SS	87	26	ML	MOTTLED BROWN-GRAY CLAYEY SILT
10	SS	90	16	ML	SAME W/ ORGANIC STAINING
15	SS	90	18	ML	SAME AS ABOVE
20	SS	90	18	SM	BROWN-GRAY SANDY SILT TO 19.4', GRADING TO GRAY SILTY SAND W/ GRAVEL, MOIST.
25	SS	90	62	SP	BROWN SILTY SAND TO 23.8', GRADING TO ORANGE-BROWN MEDIUM TO COARSE GRAINED SAND W/ PEA GRAVEL.
30	SS	100	RF	SW	ORANGE MEDIUM GRAINED SAND TO 28.7', GRADING TO ORANGE-BROWN SAND W/ GRAVEL & IRON CONCRETIONS.
35	SS	80	72	SW	BROWN-ORANGE MEDIUM TO COARSE GRAINED SAND W/ PEA GRAVEL & IRON STAINING & CONCRETIONS, MOIST.
40	SS	83	33	SP	BROWN-ORANGE MEDIUM TO COARSE GRAINED SAND W/ GRAVEL, WET.
45	SS	83	22	CL	SAME AS ABOVE
50	SS	87	62	SP	SAME AS ABOVE
55					
60					

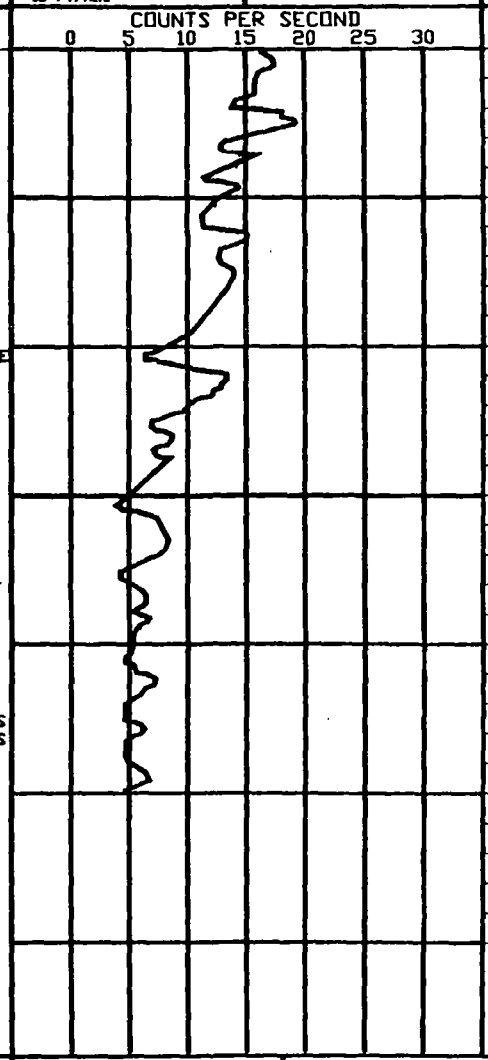
BORING TERMINATED @ 50.0' AND WELL SET @ 49.89' ON 8/3/90.

WELL CONSTRUCTION DETAILS



GAMMA RAY LOG

COUNTS PER SECOND/DIVISION = 5	CASING TYPE: 2" STAINLESS AND GALVANIZED STEEL
DISPLACEMENT = 0	TOP OF LOG = GROUND SURFACE
RATE OF LOGGING = 15 FT/MIN.	DATE LOGGED: 09/12/90



DEPTH (FEET)	RELATIVE % CLAY
0–5	69
5–10	51
10–15	51
15–20	37
20–25	34
25–30	20
30–35	14
35–40	16
40–45	18
45–50	17

NOTES

- INCREASED CLAY CONTENT
- DECREASING CLAY CONTENT WITH DEPTH
- BENTONITE SEAL MAY BE STRETCHED AND THINNED DUE TO PROBLEMS INVOLVED WITH REMOVAL OF AUGERS
- SCREEN

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MW-31
COLLIERVILLE SITE
COLLIERVILLE, TN.

DWG DATE: 02/20/91 | DWG NAME: CARGRL31

GAMMA LOG MW-31

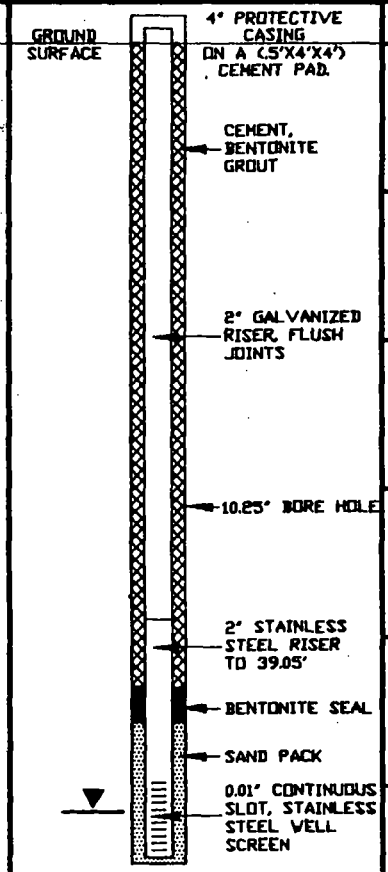
LOGGED BY: GUY MONTFORT

LOGGING DEVICE: MT. SOPRIS MODEL 1000C DUAL LOGGER

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	USCS SYMBOL	DESCRIPTION OF SUBSURFACE MATERIALS
5	SS	87	11	CL	BROWN SILTY CLAY
10	SS	100	18	CL	SAME W/ GRAY MOTTLING & ORGANIC STAINING
15	SS	87	19	CL	SAME AS ABOVE
20	SS	66	64	SC	BROWN CLAYEY FINE TO MEDIUM GRAINED SAND, BANDS OF RED-BROWN ORGANIC STAINS & ROCK FRAGMENTS.
25	SS	100	94	SM	BROWN SILTY FINE-MEDIUM GRAINED SAND W/ A 0.3' BAND OF SILTY CLAY & ORGANIC STAINS.
30	SS	100	62	SM	BROWN SILTY FINE TO MEDIUM GRAINED SAND W/ ROCK FRAGMENTS & DARK STAINING.
35	SS	100	105	SM	BROWN SILTY MEDIUM TO COARSE GRAINED SAND W/ ABUNDANT ROCK FRAGMENTS.
40	SS	100	95	SW	BROWN MEDIUM TO COARSE GRAINED SAND W/ ROCK FRAGMENTS.
45	SS	100	76	SW	SAME W/ DARK BANDS OF STAIN, MOIST
50	SS	100	110	SW	SAME W/ DARK MOTTLING
55	SS	42	53	SW	WHITE-REDDISH BROWN MEDIUM TO COARSE SAND, WET.
60					

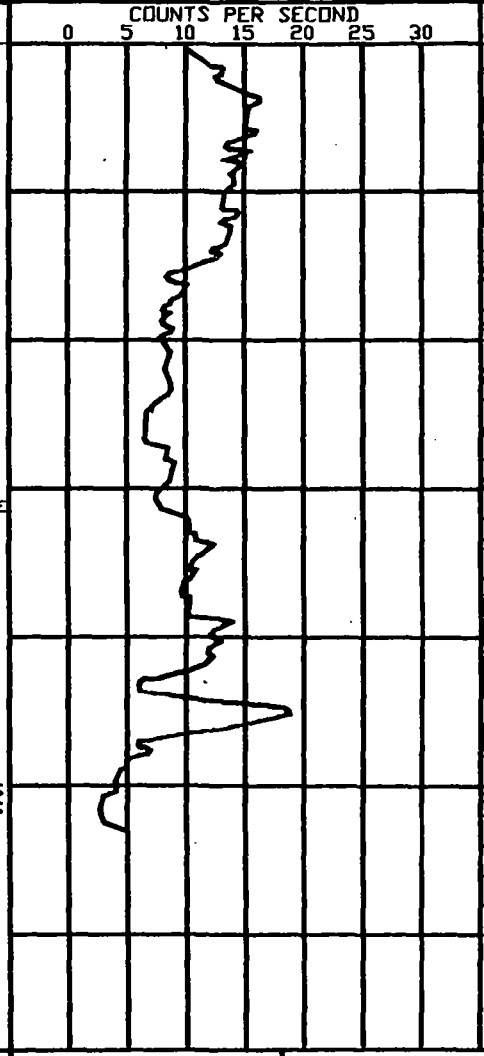
BORING TERMINATED @ 55.0' AND WELL SET @ 54.05' ON 7/27/90.

WELL CONSTRUCTION DETAILS



GAMMA RAY LOG

COUNTS PER SECOND/DIVISION = 5
CASING TYPE: 2" STAINLESS AND GALVANIZED STEEL
DISPLACEMENT = 0
TOP OF LOG = GROUND SURFACE
RATE OF LOGGING = 15 FT/MIN.
DATE LOGGED: 09/13/90



RELATIVE % CLAY	NOTES
86	INCREASED CLAY CONTENT
72	
52	
34	DECREASING CLAY CONTENT WITH DEPTH
31	
32	
47	
55	2.5 COUNT INCREASE MAY BE DUE TO BENTONITE IN THE GROUT.
	BENTONITE SEAL
18	
12	SCREEN

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MW-33

COLLIERVILLE SITE
COLLIERVILLE, TN.

DWG DATE: 02/19/91 | DWG NAME: CARGRL33

GAMMA LOG MW-33

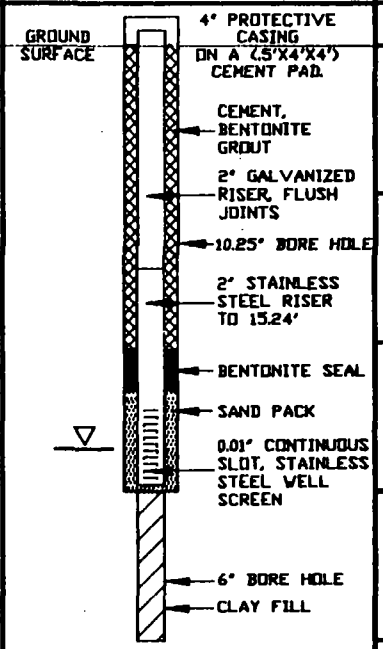
LOGGED BY: GUY MONTFORT

LOGGING DEVICE: MT, SOPRIS MODEL 1000C DUAL LOGGER

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	USCS SYMBOL	DESCRIPTION OF SUBSURFACE MATERIALS
5	SS	90	17	CL	BROWN-GRAY MOTTLED SILT W/ CLAY & ORGANIC STAINS.
10	SS	80	37	CL	BROWN-LIGHT CLAY SILTY CLAY W/ ROCK FRAGMENTS.
15	SS	100	24	SC	BROWN-GRAY MOTTLED SANDY CLAY
20	SS	90	15	SC	SAME W/ IRON STAINS
25	SS	90	40	SC	TAN CLAYEY SAND W/ IRON STAINS
30	SS	100	17	ML	ORANGE-TAN SILTY CLAY W/ A TRACE OF SAND & BLACK STAINING.
35	SS	100	10	CH	LIGHT ORANGE-GRAY CLAY
40	SS	100	13	CL	GRAY SANDY CLAY

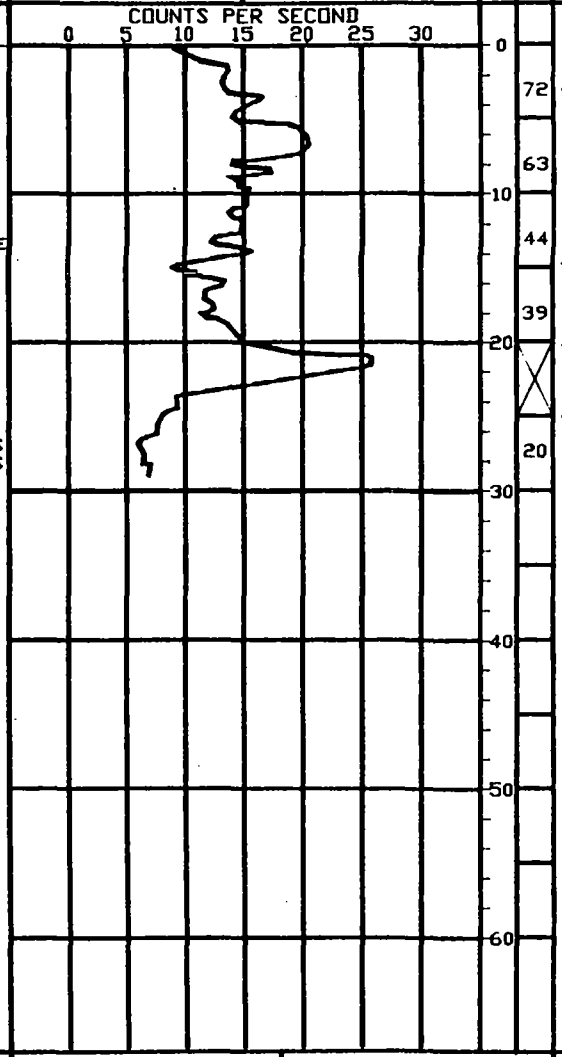
BORING TERMINATED @ 40.0' AND WELL SET @ 30.24' ON 7/30/90.

WELL CONSTRUCTION DETAILS



GAMMA RAY LOG

COUNTS PER SECOND/DIVISION = 5	CASING TYPE: 2" STAINLESS AND GALVANIZED STEEL
DISPLACEMENT = 0	TOP OF LOG = GROUND SURFACE
RATE OF LOGGING = 15 FT/MIN.	DATE LOGGED: 09/13/90



RELATIVE % CLAY	NOTES
72	INCREASED CLAY CONTENT
63	
44	DECREASING CLAY CONTENT WITH DEPTH
39	
X	BENTONITE SEAL
20	SCREEN

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MW-35

COLLIERVILLE SITE
COLLIERVILLE, TN.

DWG DATE: 02/20/91 | DWG NAME: CARGRL35

GAMMA LOG MW-35

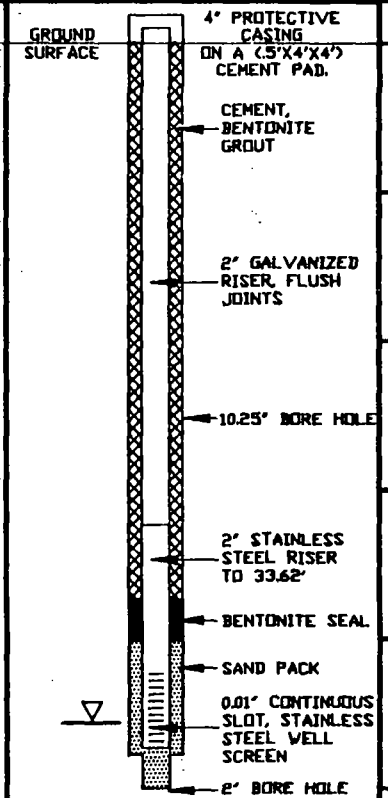
LOGGED BY: GUY MONTFORT

LOGGING DEVICE: MT. SOPRIS MODEL 1000C DUAL LOGGER

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	USCS SYMBOL	DESCRIPTION OF SUBSURFACE MATERIALS
5	SS	100	17	CL	BROWN SILTY CLAY W/ DARK ORGANIC STREAKS
10	SS	87	39	CL	BROWN MOTTLED RED & GRAY SILTY CLAY
15	SS	100	26	CL	SAME TO 13.5', GRADING TO BROWN MOTTLED RED-GRAY SANDY SILTY CLAY.
20	SS	100	74	SM	WHITE TO REDDISH-YELLOW BROWN SILTY FINE TO MEDIUM GRAINED SAND.
25	SS	100	43	CL	BROWN-GRAY MOTTLED RED SILTY CLAY
30	SS	100	50	SW	WHITE TO YELLOW-BROWN SILTY FINE TO MEDIUM GRAINED SAND W/ A CLAY SEAM. GRADES TO YELLOW-BROWN MEDIUM TO COARSE GRAINED SAND W/ PEBBLES.
35	SS	75	66	SW	YELLOW-BROWN MEDIUM TO COARSE GRAINED SAND W/ PEBBLES.
40	SS	100	60	SW	YELLOW-BROWN MEDIUM TO COARSE GRAINED SAND W/ ABUNDANT GRAVEL.
45	SS	75	17	SW	SAME GRADING TO MOTTLED GRAY-BROWN CLAYEY SAND W/ BLACK ORGANIC STAINING.
50	SS	75	15	CL	MOTTLED BROWN-GRAY SILTY CLAY
55					
60					

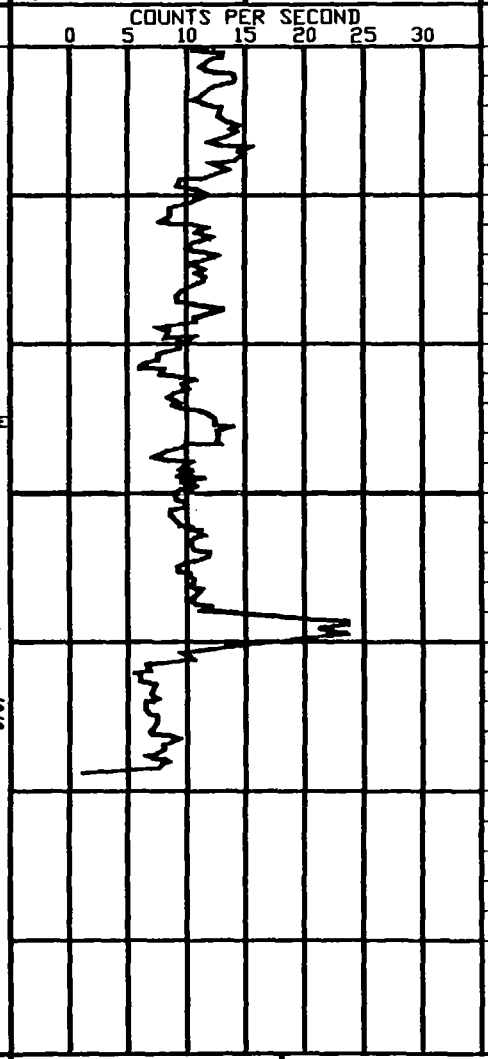
BORING TERMINATED @ 50.0' AND WELL SET @ 48.62' ON 7/25/90.

WELL CONSTRUCTION DETAILS



GAMMA RAY LOG

COUNTS PER SECOND/DIVISION = 5	CASING TYPE: 2" STAINLESS AND GALVANIZED STEEL
DISPLACEMENT = 0	TOP OF LOG = GROUND SURFACE
RATE OF LOGGING = 15 FT/MIN.	DATE LOGGED: 09/13/90



DEPTH (FEET)	RELATIVE % CLAY
0	
	66
10	60
	55
20	48
	49
	41
30	52
40	
	25
	36
50	
60	

NOTES

- INCREASED CLAY CONTENT
- DECREASING CLAY CONTENT WITH DEPTH
- BENTONITE SEAL
- SCREEN

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MW-37

COLLIERVILLE SITE
COLLIERVILLE, TN.

DWG DATE: 02/20/91 | DWG NAME: CARGRL37

GAMMA LOG MW-37

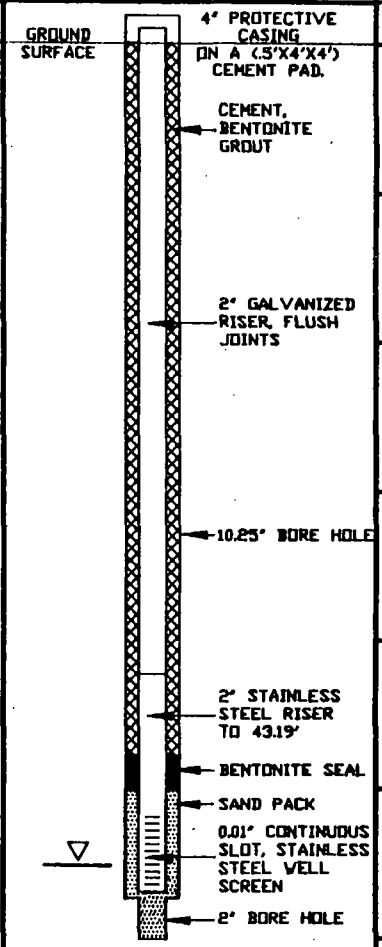
LOGGED BY: GUY MONTFORT

LOGGING DEVICE: MT. SOPRIS MODEL 1000C DUAL LOGGER

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	USCS SYMBOL	DESCRIPTION OF SUBSURFACE MATERIALS
5	SS	90	24	ML	GRAY & BROWN MOTTLED CLAYEY SILT W/ ABUNDANT IRON NODULES & STAINING.
10	SS	90	18	ML	SAME W/ TRACE OF SAND
15	SS	90	31	CL	BROWN SILTY CLAY W/ A TRACE OF SAND & ABUNDANT IRON NODULES & STAINING.
20	SS	90	38	CL	SAME GRADING TO ORANGE-RED SANDY CLAY @ 19.4'
25	SS	83	54	CL	ORANGE & RED MOTTLED CLAYEY SAND W/ MICA FLAKES.
30	SS	100	23	SP	ORANGE TO RED FINE TO MEDIUM GRAINED SAND BECOMING DARKER RED W/ CLAY @ 29.6'.
35	SS	100	110	SP	BROWN FINE TO COARSE GRAINED SAND W/ GRAVEL
40	SS	75	50	SP	BROWN MEDIUM TO COARSE GRAINED SAND W/ GRAVEL, BECOMING LIGHT YELLOW-BROWN.
45	SS	100	101	SP	SAME W/ BROWN CLAY SEAM
50	SS	90	90	SP	SAME AS ABOVE
55	SS	90	75	SP	SAME W/ TRACE OF CLAY & CHERT, WET
60	SS	90	11	CL	YELLOW-ORANGE MOTTLED DENSE CLAY W/ A TRACE OF SAND.

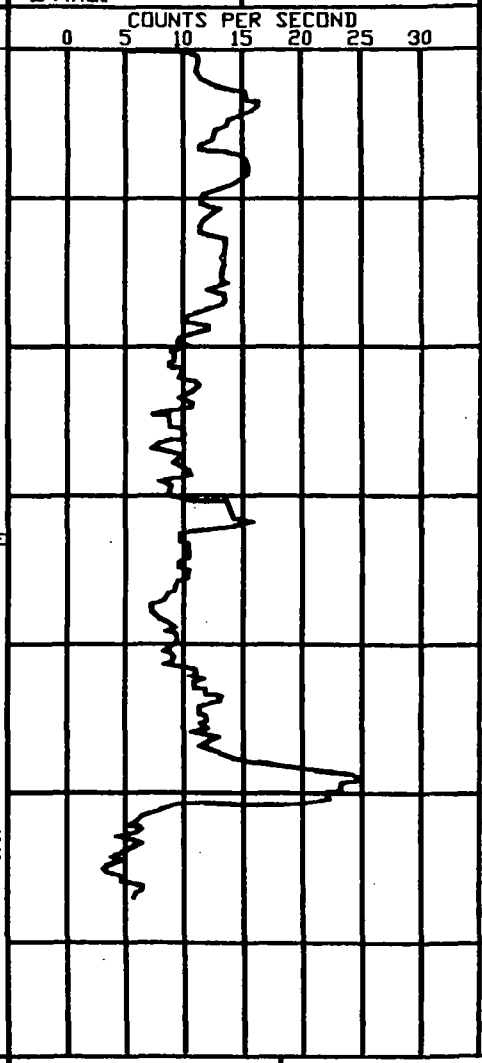
BORING TERMINATED @ 60.0' AND WELL SET @ 58.19' ON 8/1/90.

WELL CONSTRUCTION DETAILS



GAMMA RAY LOG

COUNTS PER SECOND/DIVISION = 5	CASING TYPE: 4" STAINLESS AND GALVANIZED STEEL
DISPLACEMENT = 0	TOP OF LOG = GROUND SURFACE
RATE OF LOGGING = 15 FT/MIN.	DATE LOGGED: 09/13/90



RELATIVE % CLAY	NOTES
72	INCREASED CLAY CONTENT
58	
65	
48	
44	DECREASING CLAY CONTENT WITH DEPTH
40	
52	5.0 COUNT INCREASE MAY INDICATE A CLAY LAYER.
34	
55	
X	BENTONITE SEAL
18	SCREEN
20	

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MW-39

COLLIERVILLE SITE
COLLIERVILLE, TN.

DWG DATE: 02/20/91 | DWG NAME: CARGRL39

GAMMA LOG MW-39

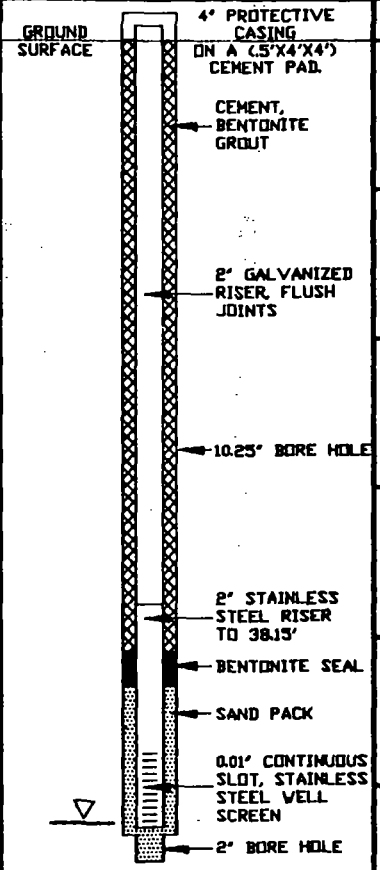
LOGGED BY: GUY MONTFORT

LOGGING DEVICE: MT. SOPRIS MODEL 1000C DUAL LOGGER

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	USCS SYMBOL	DESCRIPTION OF SUBSURFACE MATERIALS
5	SS	75	12	ML	MOTTLED BROWN-GRAY CLAYEY SILT W/ IRON STAINS
10	SS	100	14	ML	SAME AS ABOVE
15	SS	90	21	ML	SAME, GRADING INTO A BROWN SILTY FINE TO MEDIUM GRAINED SAND.
20	SS	95	83	SW	BROWN-ORANGE MEDIUM GRAINED SAND
25	SS	90	28	SW	BROWN TO RED MEDIUM GRAINED SAND W/ GRAVEL & A LIGHT BROWN CLAYEY SILT STREAK.
30	SS	100	58	SW	BROWN SILTY MEDIUM GRAINED SAND W/ GRAVEL, IRON STAINING & A THIN CLAY STREAK.
35	SS	90	53	SW	BROWN MEDIUM TO COARSE GRAINED SAND W/ ABUNDANT PEBBLES & ROCK FRAGMENTS.
40	SS	100	112	SP	SAME AS ABOVE
45	SS	100	180	SP	SAME AS ABOVE
50	SS	90	86	SP	SAME W/ IRON STAINING
55	SS	100	9	CL	LIGHT GRAY MOTTLED RED SLIGHTLY SILTY CLAY
60					

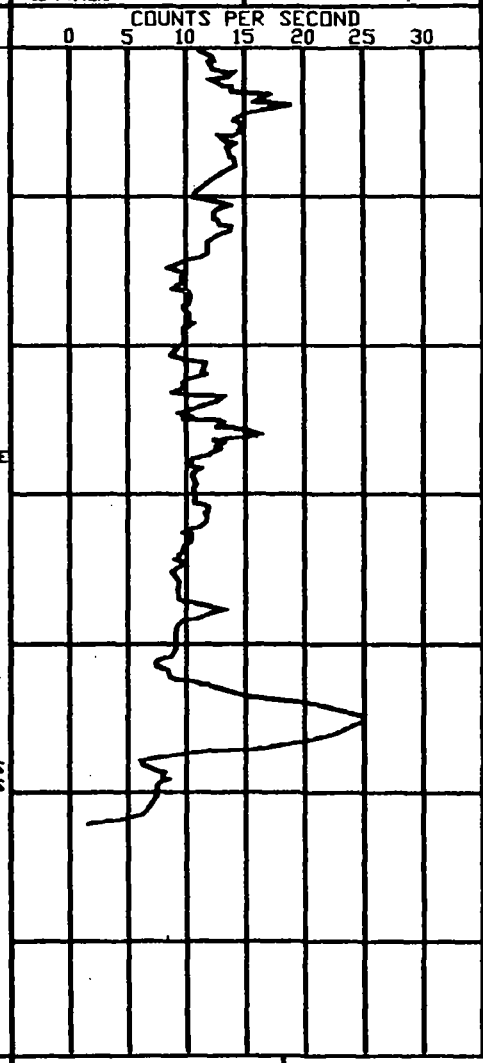
BORING TERMINATED @ 55.0' AND WELL SET @ 53.15' ON 8/8/90.

WELL CONSTRUCTION DETAILS



GAMMA RAY LOG

COUNTS PER SECOND/DIVISION = 5
DISPLACEMENT = 0
RATE OF LOGGING = 15 FT/MIN.
CASING TYPE: 2" STAINLESS AND GALVANIZED STEEL
TOP OF LOG = GROUND SURFACE
DATE LOGGED: 09/14/90



DEPTH (FEET)	RELATIVE % CLAY
0	
10	64
20	46
30	39
40	33
50	32
60	43
	32
	32
	32
	20

NOTES

- INCREASED CLAY CONTENT
- DECREASING CLAY CONTENT WITH DEPTH
- 5.0 COUNT INCREASE MAY BE DUE TO A CLAY LAYER.
- 2.5 COUNT INCREASE MAY BE DUE TO BENTONITE IN THE GROUT.
- BENTONITE SEAL
- SCREEN

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MW-41

COLLIERVILLE SITE
COLLIERVILLE, TN.

DWG DATE: 02/20/91
DWG NAME: CARGRL41

GAMMA LOG MW-41

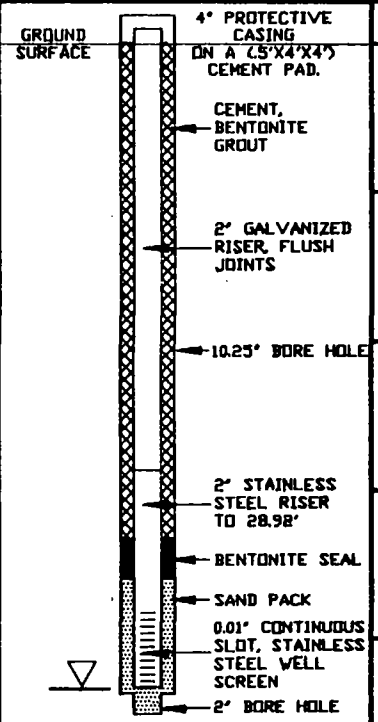
LOGGED BY: GUY MONTFORT

LOGGING DEVICE: MT. SOPRIS MODEL 1000C DUAL LOGGER

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	USCS SYMBOL	DESCRIPTION OF SUBSURFACE MATERIALS
5	SS	90	19	CL	GRAY TO BROWN SILTY CLAY W/ DARK ORGANIC STAINING.
10	SS	50	14	CL	BROWN SILTY CLAY W/ DARK ORGANIC STAINING
15	SS	100	17	CL	SAME AS ABOVE
20	SS	100	23	SW	BROWN-WHITE FINE GRAINED SAND
25	SS	95	56	SW	BROWN-RED-YELLOW FINE TO MEDIUM GRAINED SAND
30	SS	95	16	CL	GRAY-RED SLIGHTLY SILTY CLAY
35	SS	83	118	SW	BROWN MEDIUM TO COARSE GRAINED SAND W/ ABUNDANT PEBBLES.
40	SS	95	124	SW	SAME BUT SLIGHTLY MOIST
45	SS	83	15	CL	BROWN & GRAY MOTTLED SILTY CLAY, SLIGHTLY WET
50					
55					
60					

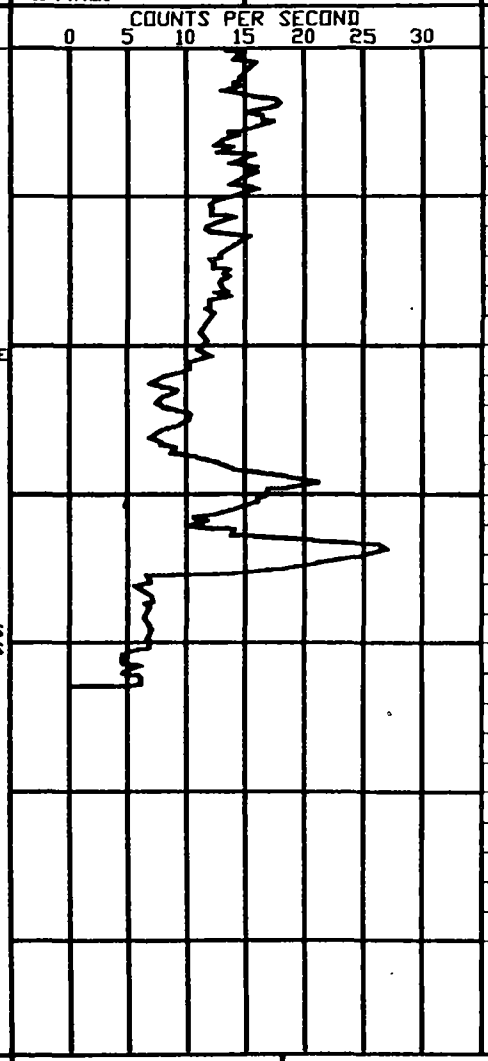
BORING TERMINATED @ 45.0' AND WELL SET @ 43.92' ON 8/20/90.

WELL CONSTRUCTION DETAILS



GAMMA RAY LOG

COUNTS PER SECOND/DIVISION = 5	CASING TYPE: 6" STAINLESS AND GALVANIZED STEEL
DISPLACEMENT = 0	TOP OF LOG = GROUND SURFACE
RATE OF LOGGING = 15 FT/MIN.	DATE LOGGED: 09/13/90



RELATIVE % CLAY	NOTES
60	INCREASED CLAY CONTENT
72	
60	
44	DECREASING CLAY CONTENT WITH DEPTH
30	
38	10 COUNT INCREASE MAY BE DUE TO A CLAY LAYER &/OR BENTONITE IN THE GROUT.
	BENTONITE SEAL
22	SCREEN
16	

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MW-43

COLLIERVILLE SITE
COLLIERVILLE, TN.

DWG DATE: 02/20/91 | DWG NAME: CARGRL43

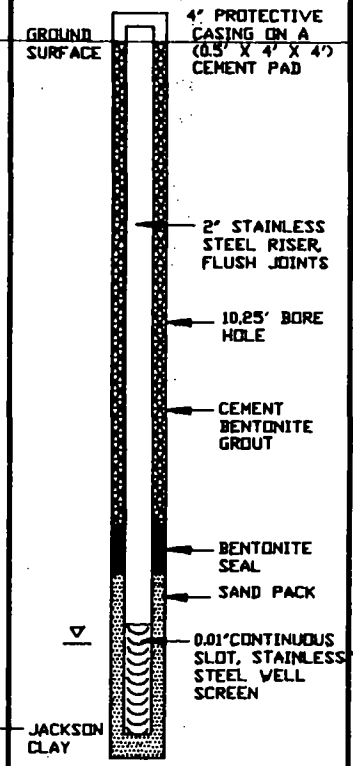
GAMMA LOG MW-43

LOGGED BY: GUY MONTFORT

LOGGING DEVICE: MT, SOPRIS MODEL 1000C DUAL LOGGER

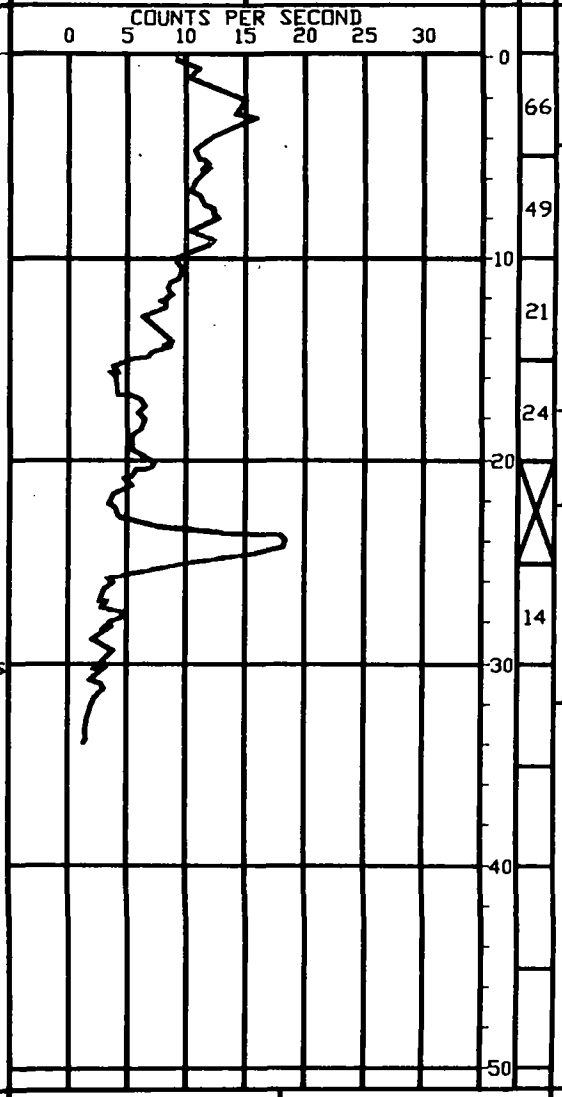
DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
					TOP OF CASING ELEVATION: 342.82' GROUND SURFACE ELEVATION: 339.75'
	SS	100	25	0.2	BROWN SILTY CLAY WITH RED AND GRAY STREAKS. TRACE OF WHITE FINE GRAINED SAND IN THE LAST 1.0'.
10	SS	92	14	0.4	MOTTLED RED-WHITE SILTY CLAY. 0.5' INTERVAL OF CLAYEY FINE GRAINED SAND AT 8.5'.
	SS	75	81	0.2	WHITE FINE GRAINED SAND WITH GRAVEL.
20	SS	50	56	0.2	SAME AS ABOVE.
	SS	58	33	0.2	SAME AS ABOVE.
30	SS	75	102	0.2	BROWN FINE TO MEDIUM GRAINED SAND AND GRAVEL, SLIGHTLY MOIST.
	SS	100	8	0.2	UPPER 0.3' IS BROWN MEDIUM TO FINE GRAINED SAND AND GRAVEL. LAST 1.7' OF SAMPLE IS BROWN-RED MOTLED GRAY SILTY CLAY, WET.
40					
					BORING TERMINATED AT 35.0' AND WELL SET AT 34.0' ON 3/19/91.

WELL CONSTRUCTION DETAILS



GAMMA RAY LOG

COUNTS PER SECOND/DIVISION = 5	CASING TYPE: 8" STAINLESS STEEL
DISPLACEMENT = 0	TOP OF LOG = GROUND SURFACE
RATE OF LOGGING = 15 FT/MIN.	DATE LOGGED: 05/21/91



RELATIVE % CLAY	NOTES
66	INCREASED CLAY CONTENT
49	
21	
24	DECREASING CLAY CONTENT WITH DEPTH
	BENTONITE SEAL
14	
	SCREEN

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5724 SUMMER TREE DR. MEMPHIS, TN. 38134 (901) 372-7962

MW-47
MONITORING WELL
COLLIERVILLE SITE
COLLIERVILLE, TN.

DATE: 06/20/91 | DWG NAME: CGRLG47

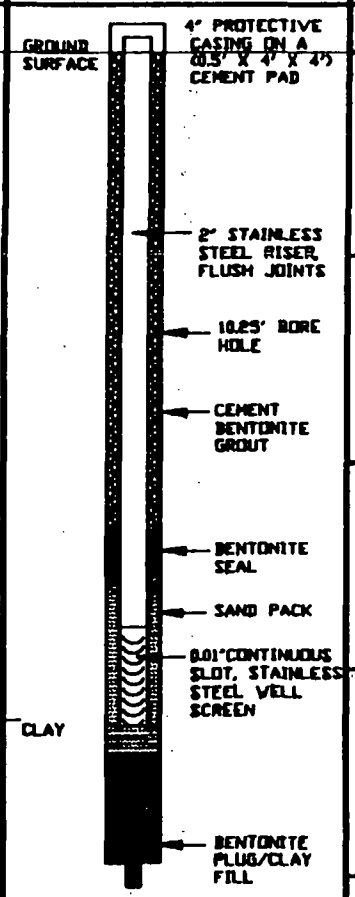
GAMMA LOG MW-47

LOGGED BY: DAVID FUEHRER

LOGGING DEVICE: MT. SOPRIS MODEL 1000C DUAL LOGGER

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
					TOP OF CASING: 351.62' GROUND SURFACE ELEVATION: 349.89'
	SS	100	8	0.0	BROWN-GRAY MOTTLED SILTY CLAY.
10	SS	92	14	0.0	SAME AS ABOVE.
	SS	100	12	0.0	BROWN-GRAY MOTTLED SILTY TO VERY FINE GRAINED SANDY CLAY.
20	SS	100	67	0.0	SAME AS ABOVE IN THE FIRST 1.7' OF SAMPLE, GRADING TO BROWN MEDIUM GRAINED SAND WITH ROCK FRAGMENTS IN THE LAST 0.3'.
	SS	83	67	0.0	BROWN FINE TO MEDIUM GRAINED SAND WITH ROCK FRAGMENTS.
30	SS	63	91	0.0	SAME AS ABOVE.
	SS	100	11	0.0	BROWN-GRAY MOTTLED SILTY CLAY WITH BLACK STAINING.
40	SS	100	14	0.0	BROWN-GRAY MOTTLED SILTY TO VERY FINE GRAINED SANDY CLAY.
50					BORING TERMINATED AT 40.0' AND WELL SET AT 33.0' ON 4/15/91.

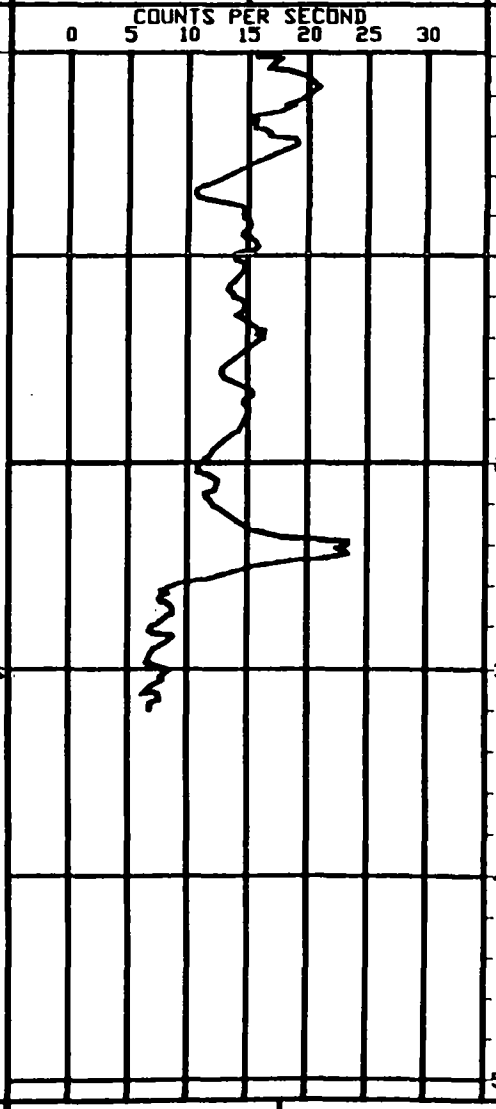
WELL CONSTRUCTION DETAILS



NOTE: WELL IS DRY

GAMMA RAY LOG

COUNTS PER SECOND/DIVISION = 5
DISPLACEMENT = 0
RATE OF LOGGING = 15 FT/MIN
CASING TYPE: 4" STAINLESS STEEL
TOP OF LOG = GROUND SURFACE
DATE LOGGED: 05/22/91



DEPTH (FEET)	RELATIVE % CLAY	NOTES
0	85	INCREASED CLAY CONTENT
10	69	
	69	
	63	
20		DECREASING CLAY CONTENT WITH DEPTH
		BENTONITE SEAL
	33	SCREEN
30		
40		
50		

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MW-49
MONITORING WELL
COLLIERVILLE SITE
COLLIERVILLE, TN.

DATE: 06/20/91
DWG NAME: CCRLG48

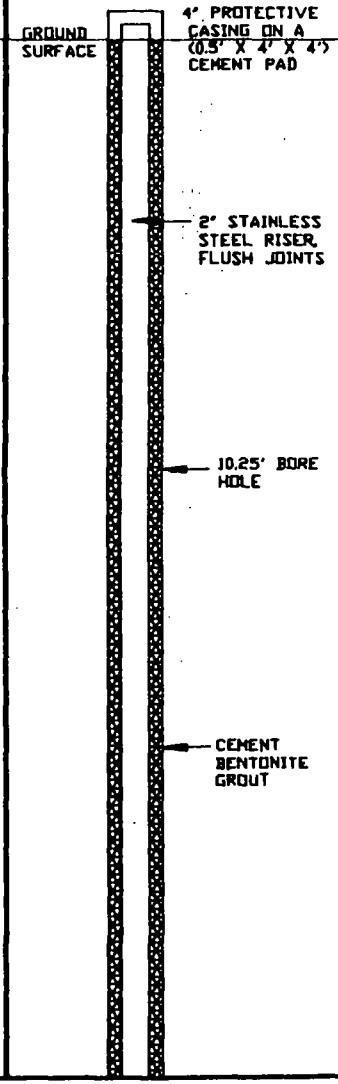
GAMMA LOG
MW-49

LOGGED BY:
DAVID FUEHRER

LOGGING DEVICE:
MT. SOPRIS MODEL 1000C DUAL LOGGER

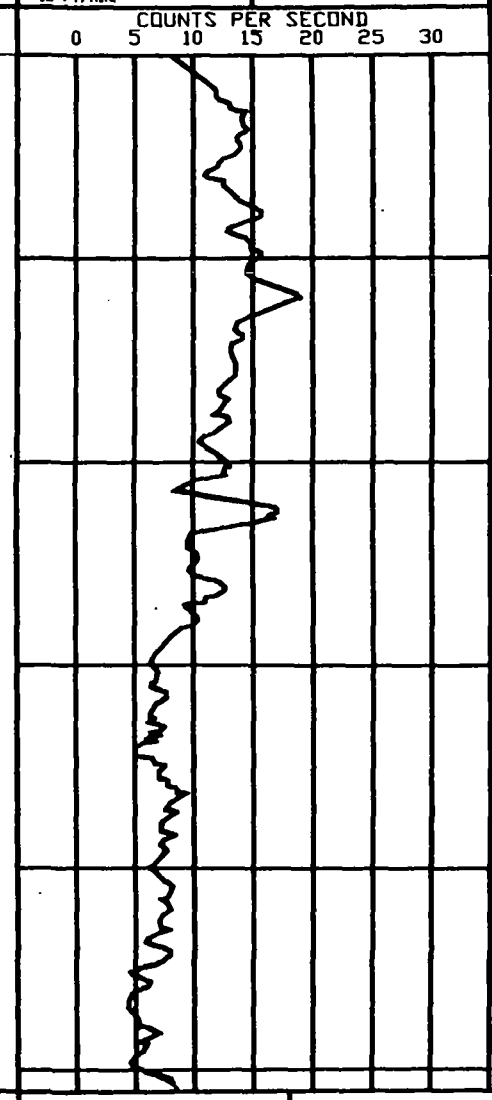
DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
					TOP OF CASING ELEVATION: 361.33' GROUND SURFACE ELEVATION: 358.24'
	SS	83	16	0.0	BROWN-GRAY MOTTLED SILTY CLAY.
10	SS	96	16	0.0	BROWN-GRAY MOTTLED SILTY CLAY WITH A TRACE OF ORGANIC MATTER. SLIGHTLY MOIST.
	SS	96	18	0.0	SAME AS ABOVE.
20	SS	92	24	0.0	BROWN-RED MOTTLED SANDY SILTY CLAY.
	SS	96	26	0.0	BROWN-RED-GRAY MOTTLED SLIGHTLY SANDY CLAY.
30	SS	92	32	0.0	BROWN FINE GRAINED SAND WITH A TRACE OF CLAY.
	SS	83	106	0.0	BROWN FINE TO MEDIUM GRAINED SAND WITH ROCK FRAGMENTS.
40	SS	83	180	0.0	SAME AS ABOVE WITH PEA GRAVEL.
	SS	75	162	0.0	SAME AS ABOVE.
50	SS	75	158	0.0	SAME AS ABOVE.

WELL CONSTRUCTION DETAILS



GAMMA RAY LOG

COUNTS PER SECOND/DIVISION = 5	CASING TYPE: 2" STAINLESS STEEL
DISPLACEMENT = 0	TOP OF LOG = GROUND SURFACE
RATE OF LOGGING = 15 FT/MIN.	DATE LOGGED: 05/22/91



DEPTH (FEET)	RELATIVE % CLAY
0	
10	50
20	64
30	58
40	43
50	40
	33
	17
	25
	18
	16

NOTES

- INCREASED CLAY CONTENT
- POSSIBLE BENTONITE CONCENTRATION IN THE GROUT

Environmental and Safety Designs, Inc.

EN SAFE®

5724 SUMMER TREE DR. MEMPHIS, TN 38134 (901)372-7962

MW-51
MONITORING WELL
COLLIERVILLE SITE
COLLIERVILLE, TN.

DATE: 06/20/91 | DWG NAME: CGRLG51A

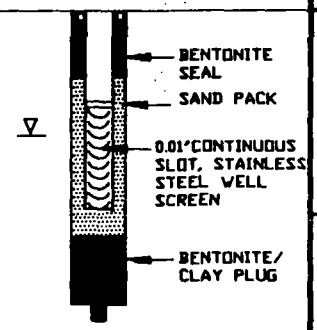
GAMMA LOG MW-51

LOGGED BY: DAVID FUEHRER

LOGGING DEVICE: MT. SOPRIS MODEL 1000C DUAL LOGGER

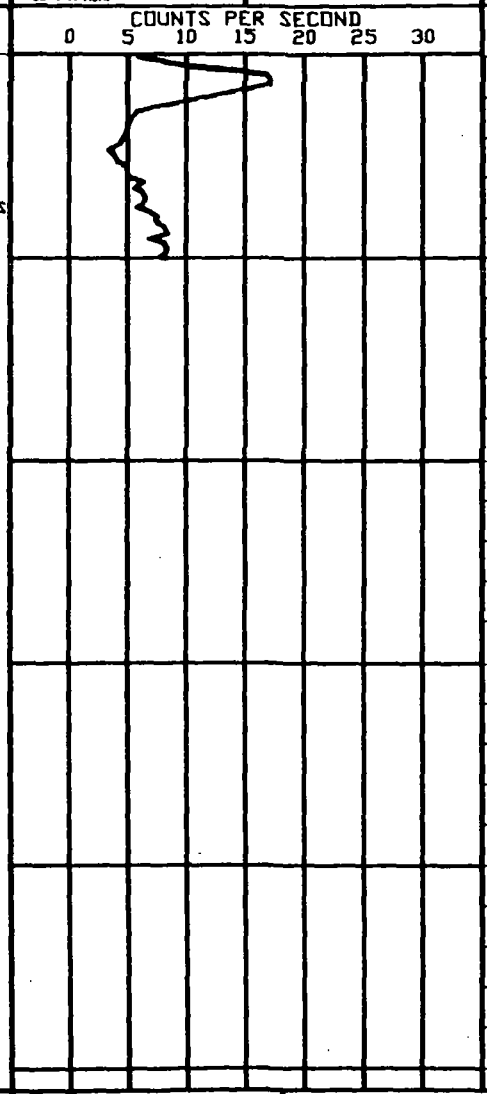
DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
	SS	75	160	0.0	SAME AS ABOVE.
60	SS	92	17	0.0	GRAY CLAY WITH MAROON STREAKS INTERSPERSED BETWEEN 0.1' THICK SAND STRINGERS.
	SS	100	14	0.0	SAME AS ABOVE.
	SS	100	11	0.0	SAME AS ABOVE WITH ONLY A TRACE OF SAND.
70					
					BORING TERMINATED AT 64.0' AND WELL SET AT 60.0' ON 3/25/91

WELL CONSTRUCTION DETAILS



GAMMA RAY LOG

COUNTS PER SECOND/DIVISION = 5
DISPLACEMENT = 0
RATE OF LOGGING = 15 FT/MIN.
CASING TYPE: 2" STAINLESS STEEL
TOP OF LOG = GROUND SURFACE
DATE LOGGED: 03/22/91



DEPTH (FEET)	RELATIVE % CLAY
50	
	14
	25
60	
70	
80	
90	
100	

NOTES

- BENTONITE SEAL
- SCREEN
- JACKSON CLAY-INCREASED COUNTS

Environmental and Safety Designs, Inc.
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MW-51
MONITORING WELL
COLLIERVILLE SITE
COLLIERVILLE, TN.

DATE: 06/20/91
DWG NAME: CGRLG51B

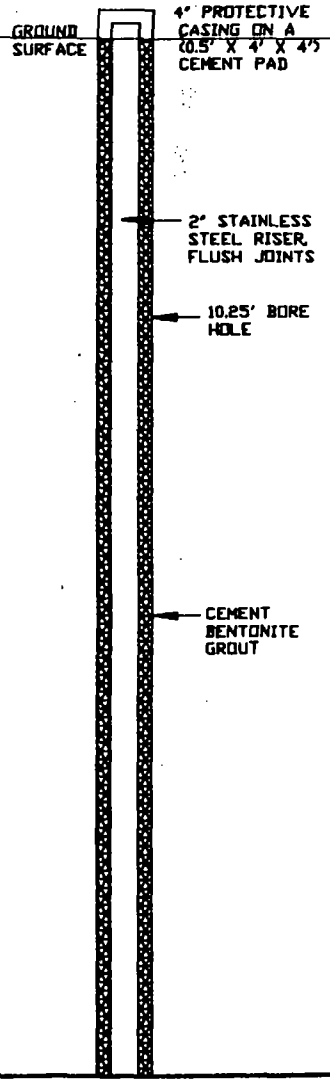
GAMMA LOG
MW-51

LOGGED BY: DAVID FUEHRER

LOGGING DEVICE: MT. SOPRIS MODEL 1000C DUAL LOGGER

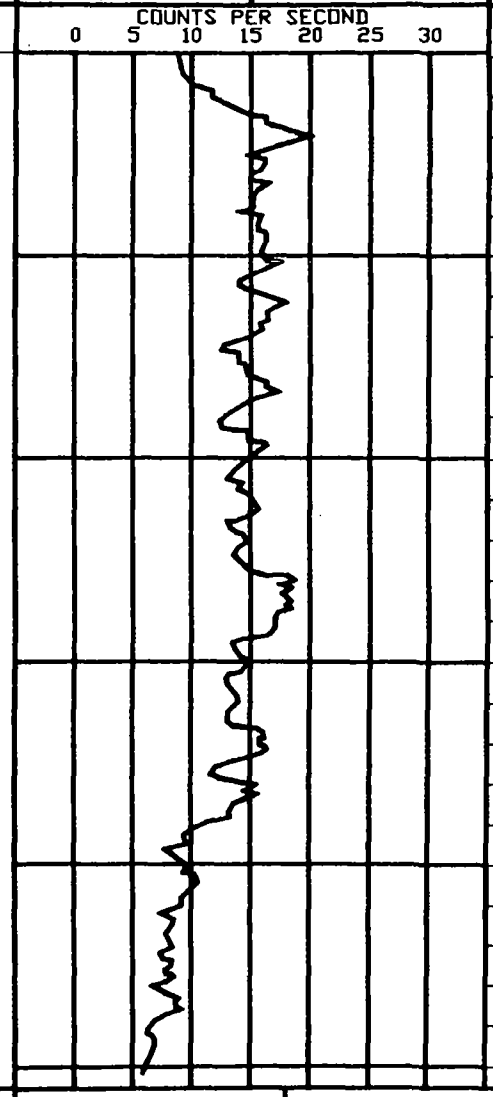
DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
					TOP OF CASING ELEVATION: 363.49' GROUND SURFACE ELEVATION: 361.32'
	SS	83	32	0.0	MOTTLED BROWN-GRAY SILTY CLAY.
10	SS	83	23	0.0	BROWN SILTY CLAY, SLIGHTLY MOIST.
	SS	83	36	0.0	MOTTLED BROWN-TAN SILTY CLAY.
20	SS	83	33	0.0	BROWN-ORANGE SILTY CLAY WITH LENSES OF SANDY CLAY, DRY, VERY HARD.
	SS	75	44	0.0	MOTTLED RED-ORANGE-GRAY SANDY SILTY CLAY, VERY DRY, VERY HARD.
30	SS	92	26	0.0	BROWN-RED SILTY CLAYEY FINE GRAINED SAND WITH A 0.3' CLAY LENS, DRY, HARD.
	SS	66	27	0.0	BROWN-RED-GRAY SILTY CLAYEY VERY FINE GRAINED SAND WITH A 0.1' CLAY SEAM, DRY.
40	SS	92	98	0.0	BROWN FINE TO MEDIUM GRAINED SAND WITH ABUNDANT GRAVEL AND ROCK FRAGMENTS, DRY.
	SS	87	79	0.0	1.2' OF BROWN FINE TO MEDIUM GRAINED SAND WITH GRAVEL ABOVE A 0.3' WHITE DRY CLAY LAYER. REST OF THE SAMPLE CONSISTS OF BROWN FINE TO MEDIUM GRAINED CLAYEY SAND WITH ROCK FRAGMENTS, DRY.
50	SS	83	103	0.0	BROWN FINE TO MEDIUM GRAINED SAND WITH ROCK FRAGMENTS, VERY DRY.

WELL CONSTRUCTION DETAILS



GAMMA RAY LOG

COUNTS PER SECOND/DIVISION = 5
DISPLACEMENT = 0
RATE OF LOGGING = 15 FT/MIN.
CASING TYPE: 2" STAINLESS STEEL
TOP OF LOG = GROUND SURFACE
DATE LOGGED: 05/22/91



DEPTH (FEET)	RELATIVE % CLAY
0	57
	64
10	57
	56
20	63
	70
30	57
	30
40	22
	23
50	

NOTES

INCREASED CLAY CONTENT

DECREASING CLAY CONTENT WITH DEPTH

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5724 SUMMER TREE DR. MEMPHIS, TN. 38134 (901) 372-7962

MW-53
MONITORING WELL
COLLIERVILLE SITE
COLLIERVILLE, TN.

DATE: 06/20/91
DWG NAME: CGRLG53A

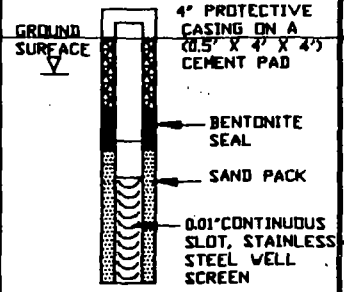
GAMMA LOG MW-53

LOGGED BY: DAVID FUEHRER

LOGGING DEVICE: MT. SOPRIS MODEL 1000C DUAL LOGGER

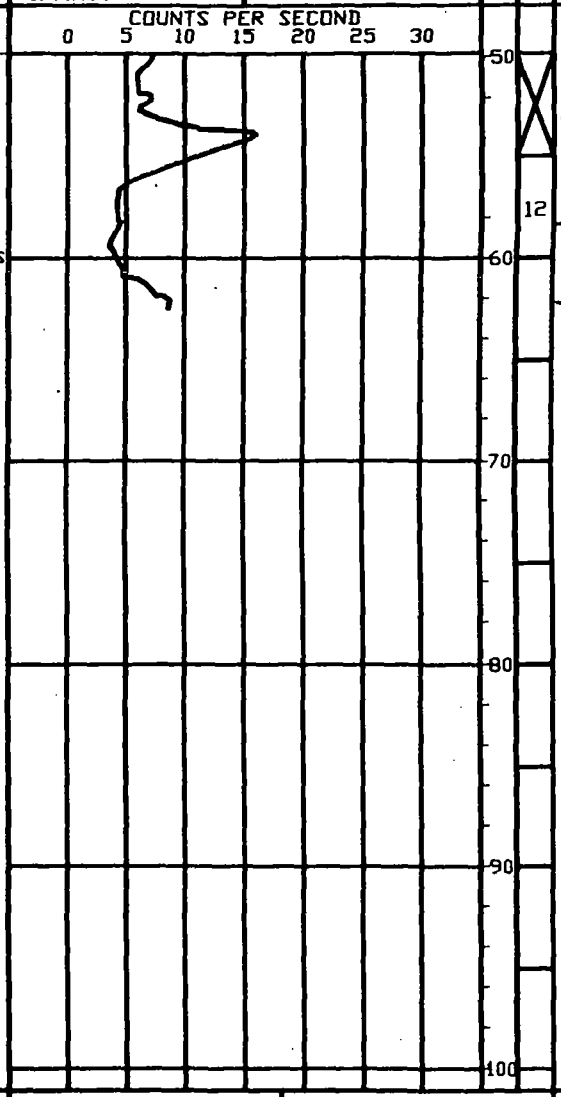
DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
	SS	87	9½	0.0	BROWN FINE TO MEDIUM GRAINED SAND WITH PEBBLES AND ROCK FRAGMENTS, SLIGHTLY MOIST.
	SS	83	12	0.0	BROWN MEDIUM GRAINED SAND WITH GRAVEL AND ROCK FRAGMENTS.
60	SS	75	17½	0.0	0.75' OF FINE GRAINED WHITE SAND AND ROCK FRAGMENTS FOLLOWED BY BROWN FINE TO MEDIUM GRAINED SAND AND ROCK FRAGMENTS.
	SS	75	15	0.0	0.5' OF BROWN CLAYEY FINE GRAINED SAND AND GRAVEL. GRADES TO MOTTLED BROWN-GRAY SILTY CLAY, SLIGHTLY MOIST.
70					
					BORING TERMINATED AT 63.0' AND WELL SET AT 62.5' ON 4/3/91.

WELL CONSTRUCTION DETAILS



GAMMA RAY LOG

COUNTS PER SECOND/DIVISION = 5	CASING TYPE: 2" STAINLESS STEEL
DISPLACEMENT = 0	TOP OF LOG = GROUND SURFACE
RATE OF LOGGING = 15 FT/MIN.	DATE LOGGED: 05/22/91



NOTES

- BENTONITE SEAL
- SCREEN
- INCREASED CLAY CONTENT AT THE TOP OF THE JACKSON CLAY

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MW-53
MONITORING WELL
COLLIERVILLE SITE
COLLIERVILLE, TN.

DATE: 06/20/91 | DWG NAME: CGRLG538

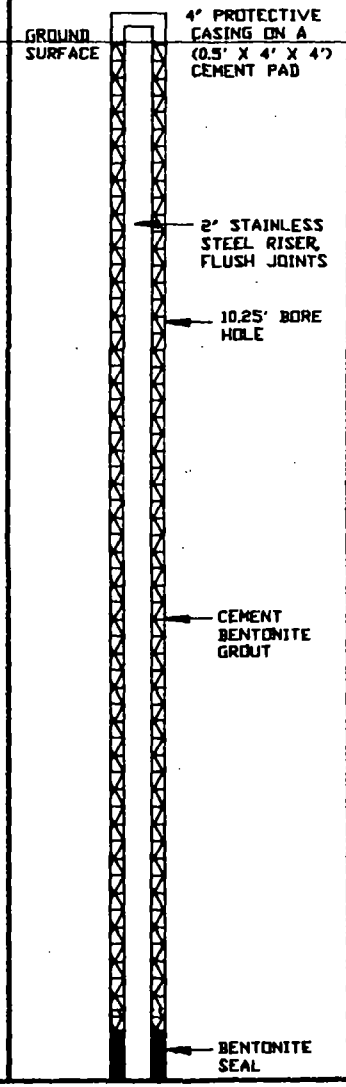
GAMMA LOG MW-53

LOGGED BY: DAVID FUEHRER

LOGGING DEVICE: MT. SOPRIS MODEL 1000C DUAL LOGGER

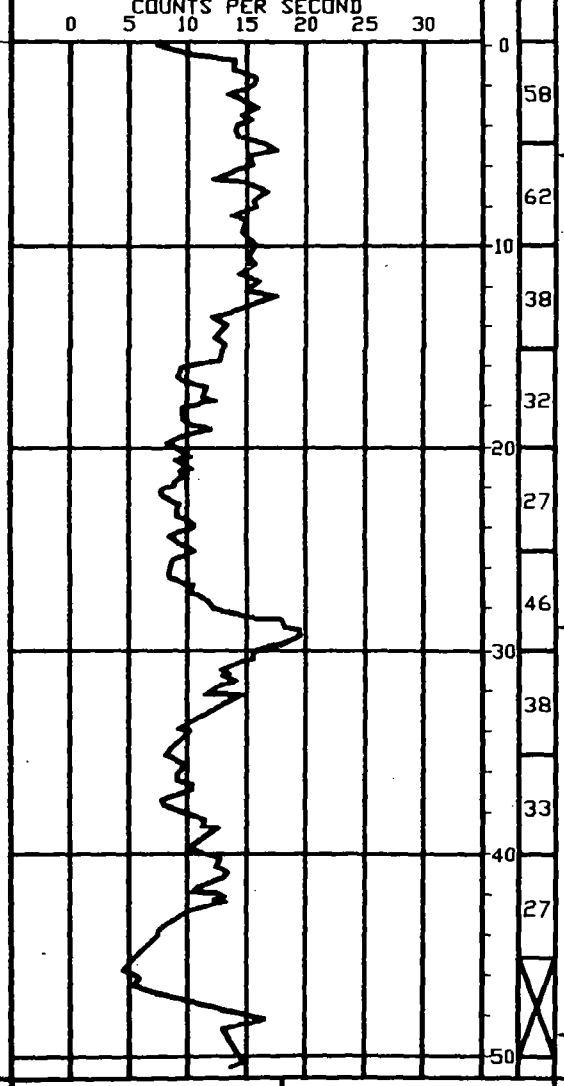
DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
					TOP OF CASING ELEVATION 354.86' GROUND SURFACE ELEVATION 351.89'
	SS	92	28	0.0	MOTTLED BROWN-GRAY SILTY CLAY.
10	SS	75	19	0.0	BROWN SILTY CLAY.
	SS	96	19	0.0	BROWN-RED SANDY CLAY WITH IRON CONCRETIONS AND ROCK FRAGMENTS.
20	SS	83	75	0.0	ORANGE-RED-BROWN MEDIUM GRAINED SAND IN THE UPPER 0.66' GRADING TO FINE GRAINED SAND WITH A TRACE OF SILT.
	SS	50	82	0.0	BROWN FINE TO MEDIUM GRAINED SAND.
30	SS	75	19	0.0	SAME AS ABOVE WITH 0.33' OF TIGHT BROWN FAT CLAY AT THE END OF THE SAMPLE.
	SS	79	81	0.0	RED-BROWN FINE TO MEDIUM GRAINED SAND AND WHITISH MEDIUM GRAINED SAND WITH ROCK FRAGMENTS.
40	SS	75	82	0.0	WHITISH-GRAY MEDIUM GRAINED SAND WITH GRAVEL AND ROCK FRAGMENTS.
	SS	83	80	0.0	SAME AS ABOVE.
50	SS	92	80	0.0	SAME AS ABOVE WITH RED STAINING.

WELL CONSTRUCTION DETAILS



GAMMA RAY LOG

COUNTS PER SECOND/DIVISION = 5	CASING TYPE: 2" STAINLESS STEEL
DISPLACEMENT = 0	TOP OF LOG = GROUND SURFACE
RATE OF LOGGING = 15 FT/MIN.	DATE LOGGED: 05/22/91



DEPTH (FEET)	RELATIVE % CLAY
0–10	58
10–20	62
20–30	38
30–40	32
40–50	27
	46
	38
	33
	27

NOTES

- INCREASED CLAY CONTENT
- THIN CLAY BED
- BENTONITE SEAL

Environmental and Safety Designs, Inc.

EN SAFE®

5724 SUMMER TREE DR. MEMPHIS, TN. 38134 (901)372-7962

MW-55
MONITORING WELL
COLLIERVILLE SITE
COLLIERVILLE, TN.

DATE: 06/20/91 | DWG NAME: CGRLG55A

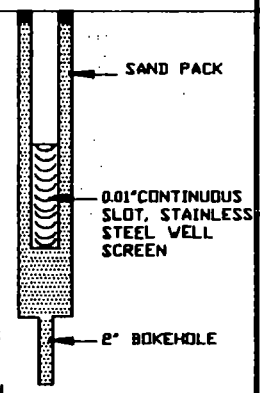
GAMMA LOG MW-55

LOGGED BY: DAVID FUEHRER

LOGGING DEVICE: MT. SOPRIS MODEL 1000C DUAL LOGGER

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
	SS	92	133	0.0	SAME AS ABOVE.
60	SS	58	127	0.0	BROWN MEDIUM GRAINED SAND WITH GRAVEL AND ROCK FRAGMENTS.
	SS	96	58	0.0	BROWN MEDIUM GRAINED SAND IN UPER 1.4' GRADING TO FINE TO MEDIUM GRAINED WHITE SAND.
70					
					BORING TERMINATED AT 65.0' AND WELL SET AT 62.0' ON 4/8/91

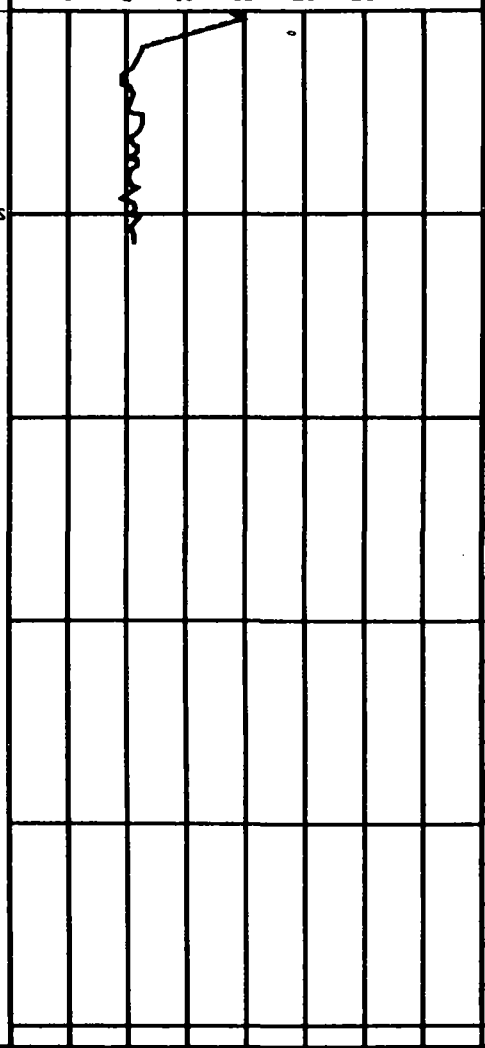
WELL CONSTRUCTION DETAILS



NOTE: WELL IS DRY

GAMMA RAY LOG

COUNTS PER SECOND/DIVISION = 5
DISPLACEMENT = 0
RATE OF LOGGING = 15 FT/MIN.
CASING TYPE: 2" STAINLESS STEEL
TOP OF LOG = GROUND SURFACE
DATE LOGGED: 05/22/91



RELATIVE % CLAY: 14, 16

NOTES

DECREASING CLAY CONTENT WITH DEPTH

SCREEN

Environmental and Safety Designs, Inc.

EN SAFE®

5724 SUMMER TREE DR. MEMPHIS, TN. 38134 (901)372-7962

MW-55
MONITORING WELL
COLLIERVILLE SITE
COLLIERVILLE, TN.

DATE: 06/20/91

DWG NAME: CGRLG55B

GAMMA LOG MW-55

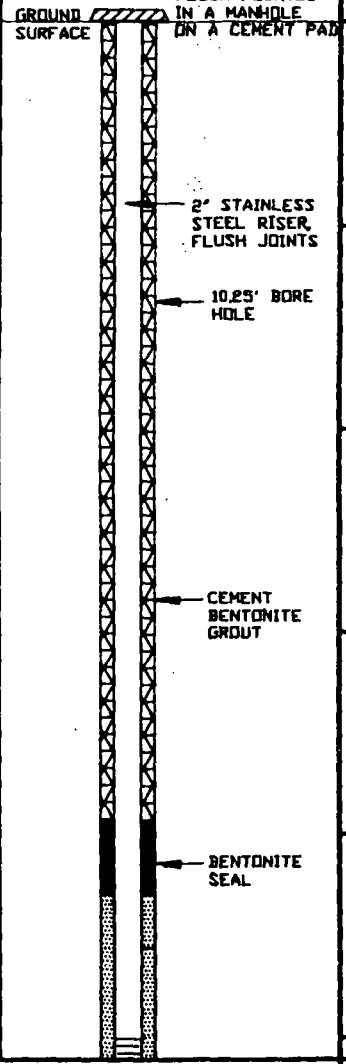
LOGGED BY: DAVID FUEHRER

LOGGING DEVICE: MT. SOPRIS MODEL 1000C DUAL LOGGER

TOP OF CASING ELEVATION: 359.87'
GROUND SURFACE ELEVATION: 359.87'

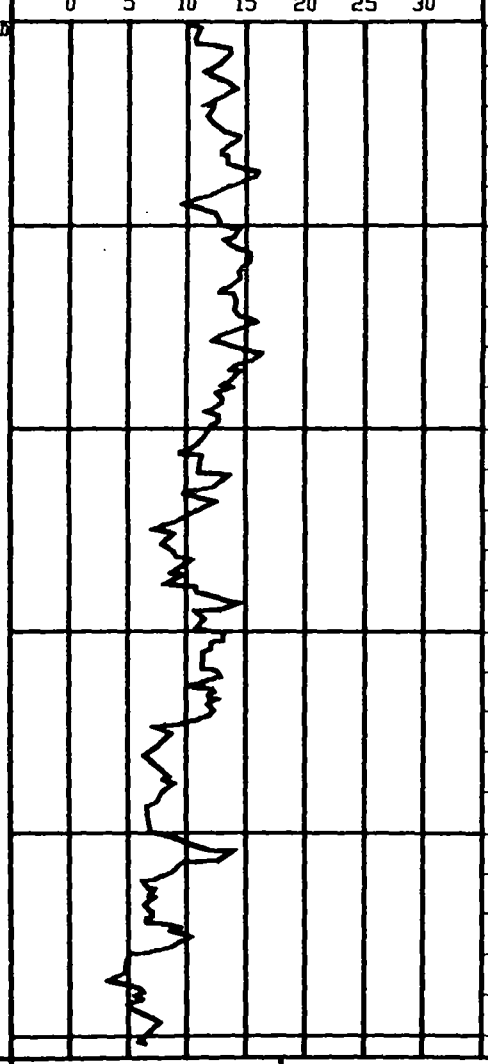
DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
					PERCHED WATER ZONE ABOVE 3.0'-CONTRIBUTED TO DIFFICULTY IN EMPLACING THE BENTONITE SEAL.
	SS	100	35	0.2	BROWN-GRAY CLAYEY SILT, ORGANIC INCLUSIONS, SLIGHTLY MOIST.
10	SS	75	33	0.2	BROWN SILT, DRY.
	SS	100	75	0.2	RED-BROWN-GARY SILT, DRY, DENSE, ORGANIC INCLUSIONS.
20	SS	100	62	0.2	RED-BROWN-GRAY-TAN SANDY CLAY, SLIGHTLY MOIST DENSE.
	SS	66	54	0.2	BROWN-ORANGE FINE TO MEDIUM GRAINED SILTY SAND, VERY DRY.
30	SS	75	20	0.2	YELLOW-ORANGE-WHITE VERY FINE GRAINED SILTY SANDS.
	SS	50	108	0.2	BROWN-ORANGE FINE TO MEDIUM GRAINED SAND, DRY.
40	SS	75	N/A	0.2	SAME AS ABOVE.
	SS	75	111	0.2	ORANGE-TAN FINE TO MEDIUM GRAINED SAND WITH A TRACE OF GRAVEL.
50	SS	N/A	109	0.2	SAME AS ABOVE, MOIST IN LAST 0.25'.

WELL CONSTRUCTION DETAILS



GAMMA RAY LOG

COUNTS PER SECOND/DIVISION = 5
DISPLACEMENT = 0
RATE OF LOGGING = 15 FT/MIN.
CASING TYPE: 2" STAINLESS STEEL
TOP OF LOG = GROUND SURFACE
DATE LOGGED: 05/23/91



DEPTH (FEET)	RELATIVE % CLAY
0	
	56
	66
10	
	76
	72
20	
	45
	43
30	
	41
	31
40	
	24
	17
50	

NOTES

INCREASED CLAY CONTENT

BENTONITE SEAL

DECREASING CLAY CONTENT WITH DEPTH

Environmental and Safety Designs, Inc.
EN SAFE®
5724 SUMMER TREE DR. MEMPHIS, TN. 38134 (901)372-7962

MW-57
MONITORING WELL
COLLIERVILLE SITE
COLLIERVILLE, TN.

DATE: 06/20/91
DWG NAME: CGRLG57A

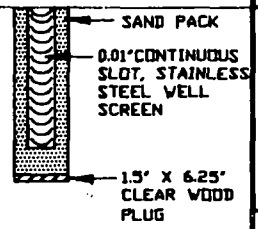
GAMMA LOG MW-57

LOGGED BY: DAVID FUEHRER

LOGGING DEVICE: MT. SOPRIS MODEL 1000C DUAL LOGGER

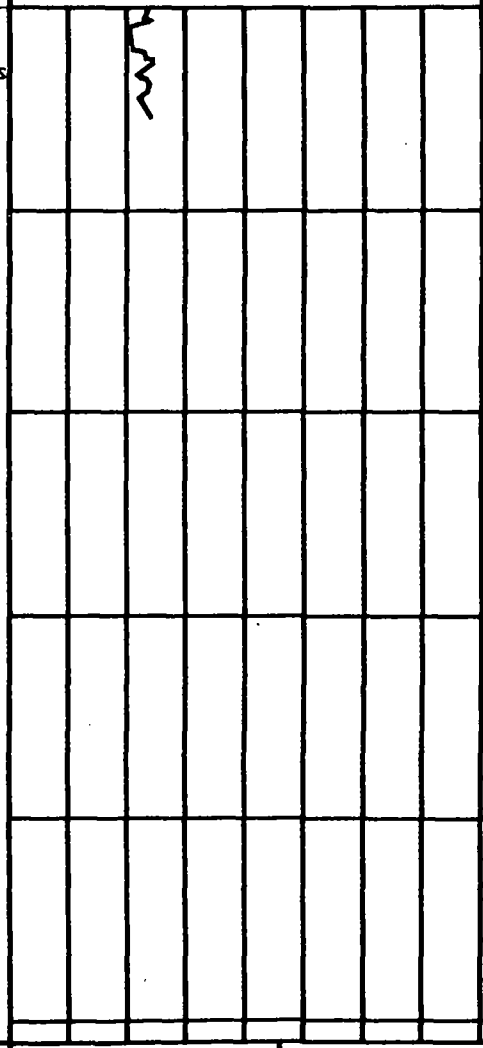
DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
	SS	42	20	0.2	FINE TO MEDIUM GRAINED, MOIST, GRAVEL AND SILT, OVERLYING DENSE BROWN CLAY WITH A THIN SILTY SAND STRINGER.
	SS	100	9	N/A	BROWN CLAY, DENSE, WITH GRAY SILT STRINGERS.
60					
					BORING TERMINATED AT 57.0' AND WELL SET AT 55.5' ON 3/29/91.

WELL CONSTRUCTION DETAILS



GAMMA RAY LOG

COUNTS PER SECOND/DIVISION = 5
CASING TYPE: 2" STAINLESS STEEL
DISPLACEMENT = 0
TOP OF LOG = GROUND SURFACE
RATE OF LOGGING = 15 FT/MIN.
DATE LOGGED: 05/23/91



DEPTH (FEET)	RELATIVE % CLAY	NOTES
50	18	SCREEN
60		
70		
80		
90		
100		

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MW-57
MONITORING WELL
COLLIERVILLE SITE
COLLIERVILLE, TN.

DATE: 06/20/91
DWG NAME: CGRLG57B

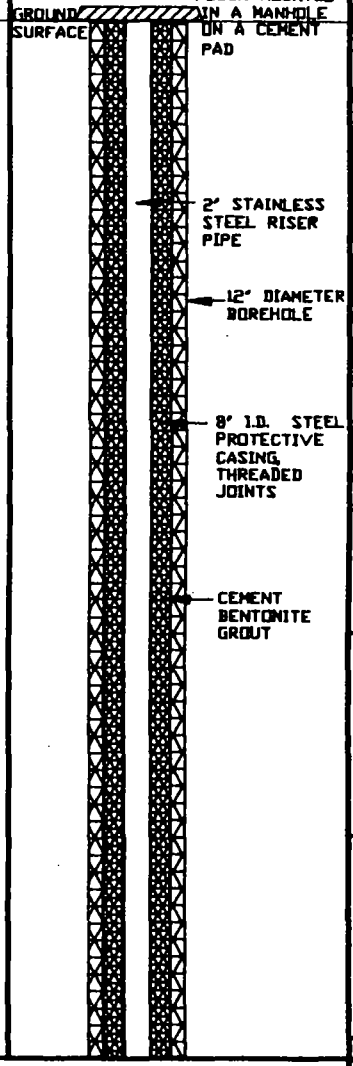
GAMMA LOG
MW-57

LOGGED BY: DAVID FUEHRER

LOGGING DEVICE: MT. SOPRIS MODEL 1000C DUAL LOGGER

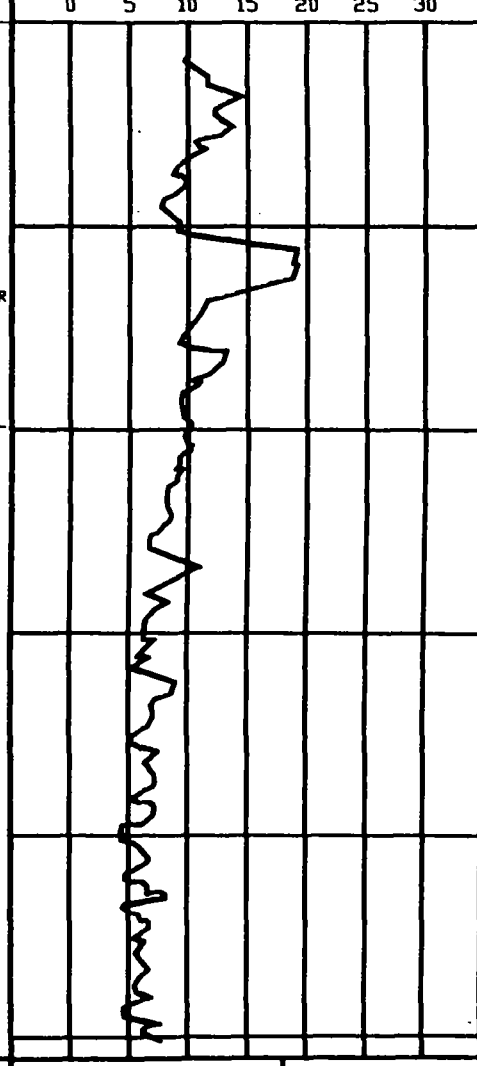
DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
					TOP OF CASING ELEVATION: 359.95' GROUND SURFACE ELEVATION: 359.86'
					PERCHED WATER ZONE ABOVE 3.0'-CONTRIBUTED TO DIFFICULTY IN EMPLACING THE BENTONITE SEAL.
	SS	100	35	0.2	BROWN-GRAY CLAYEY SILT, ORGANIC INCLUSIONS, SLIGHTLY MOIST.
10	SS	75	33	0.2	BROWN SILT, DRY.
	SS	100	75	0.2	RED-BROWN-GARY SILT, DRY, DENSE, ORGANIC INCLUSIONS.
20	SS	100	62	0.2	RED-BROWN-GRAY-TAN SANDY CLAY, SLIGHTLY MOIST DENSE.
	SS	66	54	0.2	BROWN-ORANGE FINE TO MEDIUM GRAINED SILTY SAND, VERY DRY.
30	SS	75	20	0.2	YELLOW-ORANGE-WHITE VERY FINE GRAINED SILTY SANDS.
	SS	50	108	0.2	BROWN-ORANGE FINE TO MEDIUM GRAINED SAND, DRY.
40	SS	75	N/A	0.2	SAME AS ABOVE.
	SS	75	111	0.2	ORANGE-TAN FINE TO MEDIUM GRAINED SAND WITH A TRACE OF GRAVEL.
50	SS	N/A	109	0.2	SAME AS ABOVE, MOIST IN LAST 0.25'.

WELL CONSTRUCTION DETAILS



GAMMA RAY LOG

COUNTS PER SECOND/DIVISION = 5
CASING TYPE: 2" STAINLESS STEEL
DISPLACEMENT = 0
TOP OF LOG = GROUND SURFACE
RATE OF LOGGING = 15 FT/MIN.
DATE LOGGED: 05/23/91



DEPTH (FEET)	RELATIVE % CLAY
0	48
	33
10	34
	35
20	27
	31
30	21
	15
40	21
	18
50	

NOTES

- BENTONITE
- FLUVIAL TERRACE DEPOSITS
- DECREASING CLAY CONTENT

Environmental and Safety Designs, Inc.
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MW-58
MONITORING WELL
COLLIERVILLE SITE
COLLIERVILLE, TN.

DATE: 06/20/91
DWG NAME: CGRLG58A

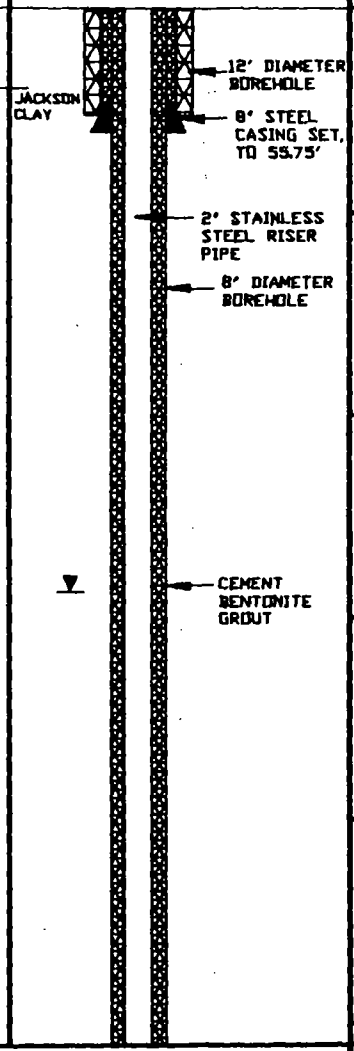
GAMMA LOG MW-58

LOGGED BY: DAVID FUEHRER

LOGGING DEVICE: MT. SOPRIS MODEL 1000C DUAL LOGGER

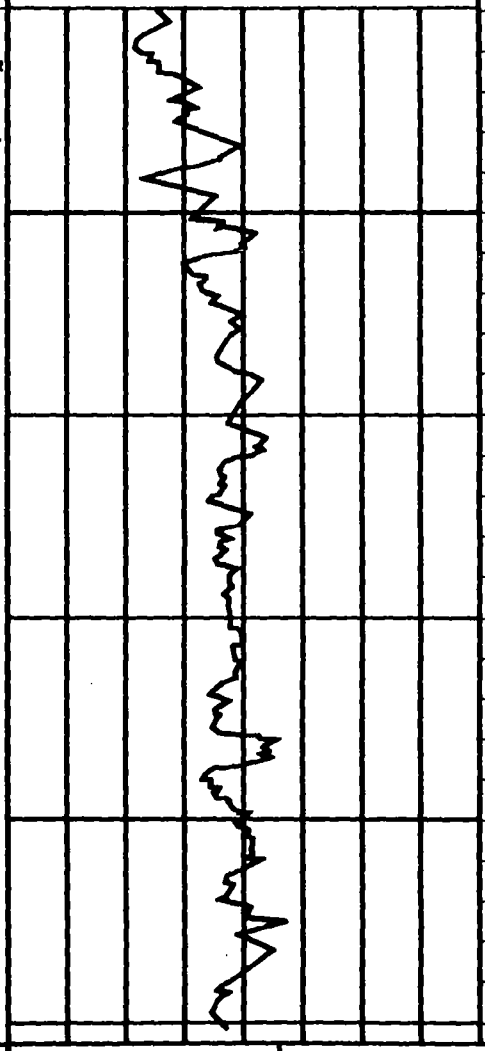
DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
	SS	42	20>	0.2	FINE TO MEDIUM GRAINED, MOIST, GRAVEL AND SILT, OVERLYING DENSE BROWN CLAY WITH A THIN SILTY SAND STRINGER.
	SS	100	9	N/A	BROWN CLAY, DENSE, WITH GRAY SILT STRINGERS.
60	SS	100	-	0.0	MOTTLED BROWN-MAROON TIGHT CLAY WITH ORGANIC MATERIAL.
	SS	100	-	0.0	DARK GRAY STIFF CLAY WITH LIGNITE.
70	SS	100	-	0.0	DARK GREEN STIFF CLAY WITH A 0.25' THICK STRINGER OF VERY FINE GRAINED SAND AT 69.8'
	SS	100	-	0.0	DARK GREEN STIFF CLAY WITH THIN LENSES OF SILT.
80	SS	100	-	0.0	DARK GREEN TIGHT CLAY WITH A TRACE OF SILT.
	SS	100	-	0.0	SAME AS ABOVE.
90	SS	100	-	0.0	SAME AS ABOVE WITH LIGNITE.
	-	-	-	-	NO SAMPLE DUE TO ROCK FRAGMENTS.
100	SS	30	-	0.0	DARK GRAY SILTY TO VERY FINE GRAINED SANDY CLAY.

WELL CONSTRUCTION DETAILS



GAMMA RAY LOG

COUNTS PER SECOND/DIVISION = 5
DISPLACEMENT = 0
RATE OF LOGGING = 15 FT/MIN.
CASING TYPE: 2" STAINLESS STEEL
TOP OF LOG = GROUND SURFACE
DATE LOGGED: 05/23/91



DEPTH (FEET)	RELATIVE % CLAY
50	30
	51
60	42
	63
70	62
	49
80	63
	63
90	72
	62
100	

NOTES

TOP OF THE JACKSON CLAY - INCREASED COUNTS

JACKSON CLAY

Environmental and Safety Designs, Inc.
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3724 SUMMER TREE DR. MEMPHIS, TN. 38134 (901)372-7962

MW-58
MONITORING WELL
COLLIERVILLE SITE
COLLIERVILLE, TN.

DATE: 08/20/91
DWG NAME: CGRLG58B

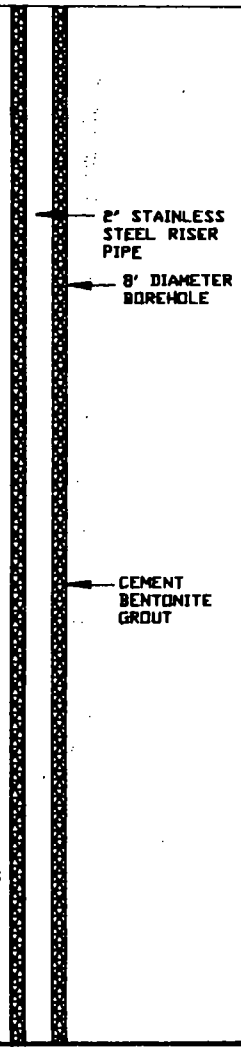
GAMMA LOG
MW-58

LOGGED BY: DAVID FUEHRER

LOGGING DEVICE: MT. SOPRIS MODEL 1000C DUAL LOGGER

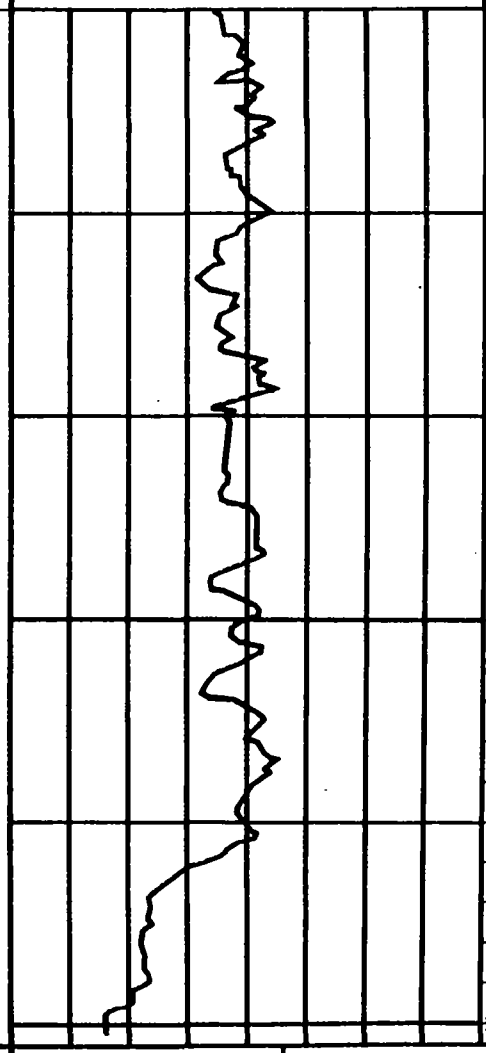
DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
	SS	100	a	0.0	DRAK GRAY SILTY CLAY IN FIRST 0.3' GRADING TO DARK GRAY TIGHT CLAY IN THE NEXT 0.5' AND DARK GRAY SILTY CLAY IN THE REST OF THE SAMPLE.
110	SS	30	-	0.0	DARK GRAY SILTY CLAY WITH ROCK FRAGMENTS.
	SS	100	-	0.0	DARK GRAY SILTY CLAY WITH A TRACE OF SAND AND BROWN ORGANIC MATTER.
120	SS	100	-	0.0	DARK GRAY SILTY CLAY WITH BROWN ORGANIC MATTER.
	SS	100	-	0.0	DARK GRAY SILTY CLAY.
130	SS	100	-	0.0	SAME AS ABOVE.
	SS	100	-	0.0	DARK GRAY SILTY CLAY WITH A TRACE OF ORGANIC MATERIAL.
140	SS	100	-	0.0	DARK GRAY SILTY CLAY.
	-	-	-	-	NO SAMPLE DUE TO ROCK FRAGMENTS. DUE TO CHANGES IN DRILLING PARAMETERS, DRILLER BELIEVES THE TOP OF THE MEMPHIS SAND IS AT 145', BROWN-WHITE FINE TO MEDIUM GRAINED SAND IN THE MUD RETURNS.
150	SS	21	-	0.0	DARK GRAY SILTY CLAY, PROBABLY SLOUGHING FROM ABOVE. TRACE OF SAND.

WELL CONSTRUCTION DETAILS



GAMMA RAY LOG

COUNTS PER SECOND/DIVISION = 5	CASING TYPE: 2" STAINLESS STEEL
DISPLACEMENT = 0	TOP OF LOG = GROUND SURFACE
RATE OF LOGGING = 15 FT/MIN.	DATE LOGGED: 05/23/91



DEPTH (FEET)	RELATIVE % CLAY
	71
	63
	51
	56
	62
	66
	64
	72
	26
	12

NOTES

BASE OF THE JACKSON CLAY

TOP OF THE MEMPHIS SANDS-DECREASED COUNTS

Environmental and Safety Designs, Inc.

EN SAFE®

5724 SUMMER TREE DR. MEMPHIS, TN. 38134 (901)372-7962

MW-58
MONITORING WELL
COLLIERVILLE SITE
COLLIERVILLE, TN.

DATE: 06/20/91

DWG NAME: CGRLG58C

GAMMA LOG
MW-58

LOGGED BY:
DAVID FUEHRER

LOGGING DEVICE:
MT. SOPRIS MODEL
1000C DUAL LOGGER

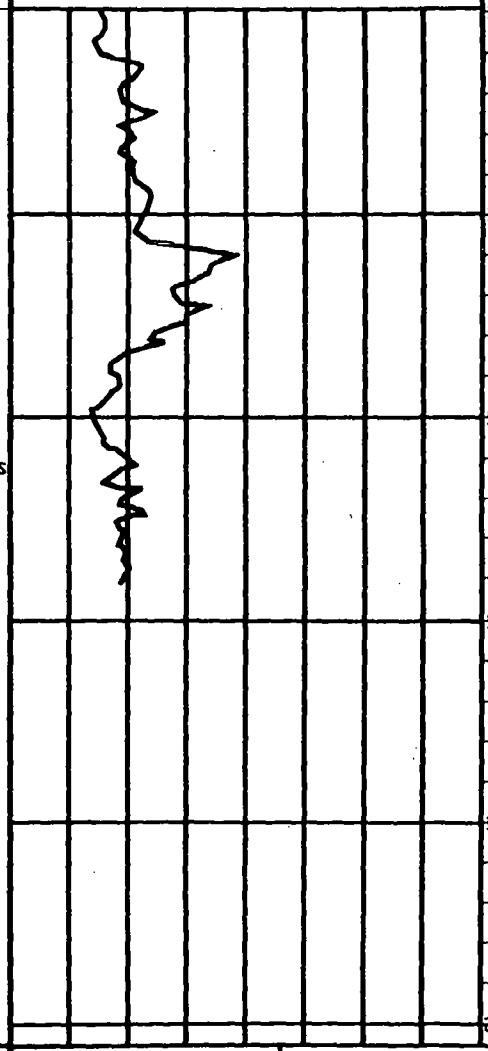
DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
					BROWN MEDIUM TO COARSE GRAINED SAND IN THE MUD RETURNS.
	SS	16	-	0.0	DARK RED-PINK-BROWN MEDIUM TO COARSE GRAINED SAND WITH SOME DARK GRAY SILTY CLAY COLLAPSE MATERIAL.
160	-	-	-	-	UNABLE TO SAMPLE DUE TO ROCK FRAGMENTS. SAND IN THE MUD RETURNS
	SS	4	-	0.0	DARK GRAY SILTY CLAY, TRACE OF SAND, PROBABLY COLLAPSE MATERIAL FROM ABOVE.
170	-	-	-	-	UNABLE TO SAMPLE DUE TO ROCK FRAGMENTS.
	SS	12	-	0.0	SAME AS THE LAST SAMPLE.
180					BROWN MEDIUM TO COARSE GRAINED SAND IN THE MUD RETURNS.

BORING TERMINATED AT 181.0' AND WELL SET AT 181.0' ON 4/22/91.

WELL CONSTRUCTION DETAILS

GAMMA RAY LOG

COUNTS PER SECOND/DIVISION = 5
DISPLACEMENT = 0
RATE OF LOGGING = 15 FT/MIN.
CASING TYPE: 2" STAINLESS STEEL
TOP OF LOG = GROUND SURFACE
DATE LOGGED: 05/23/91



DEPTH (FEET)	RELATIVE % CLAY	NOTES
150	12	MEMPHIS SANDS
	16	
160		BENTONITE SEAL
	10	
170	14	SCREEN
180		
190		
200		

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MW-58
MONITORING WELL
COLLIERVILLE SITE
COLLIERVILLE, TN.

DATE: 06/20/91
DWG NAME: CGRLG58D

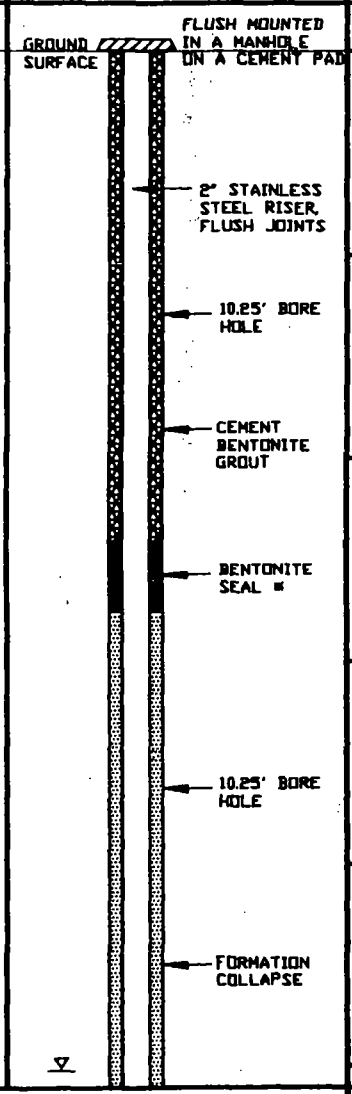
GAMMA LOG
MW-58

LOGGED BY: DAVID FUEHRER

LOGGING DEVICE: MT. SOPRIS MODEL 1000C DUAL LOGGER

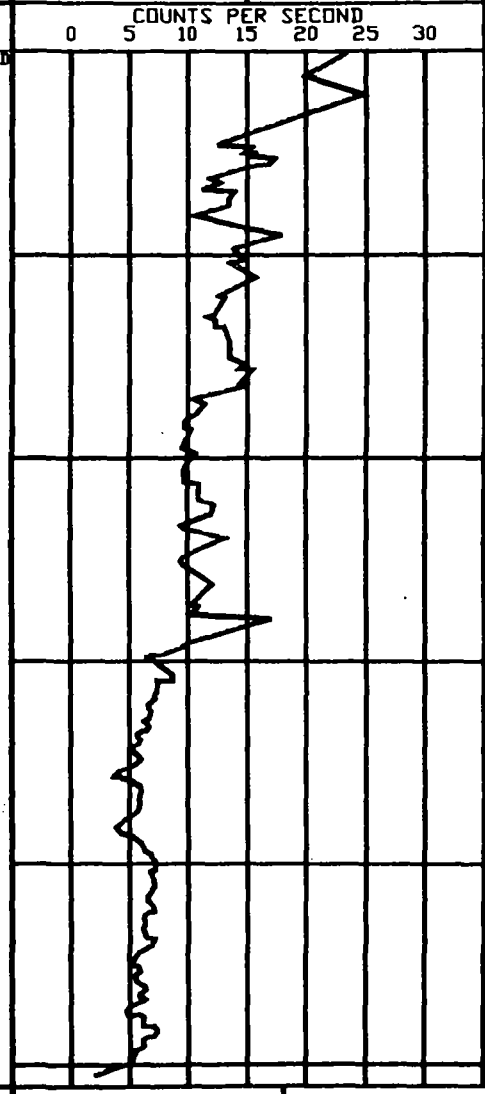
DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
					TOP OF CASING ELEVATION: 337.23' GROUND SURFACE ELEVATION: 337.37'
					SAMPLING INFORMATION FROM B-51 - 03/20/91
	SS	100	40	0.0	MOTTLED BROWN SILTY CLAY
10	SS	75	42	0.0	MOTTLED BROWN SILTY CLAY
	SS	92	22	0.0	VERY FINE GRAINED SANDY CLAY
20	SS	83	56	0.0	BROWN CLAYEY SAND
	SS	100	56	0.0	BROWN-RED MEDIUM GRAINED SAND, SPARSE ROCK FRAGMENTS, CLAY SEAMS AND TRACES OF CLAY
30	SS	87	69	0.0	RUST COLORED MEDIUM GRAINED SAND, LAST 0.2' IS WELL SORTED MEDIUM GRAINED TAN SAND
	SS	N/A	71	0.0	MOTTLED WHITE MEDIUM GRAINED SAND GRADING TO RUST COLORED FINE GRAINED SAND, MOIST
40	SS	58	79	0.0	RED-BROWN FINE TO MEDIUM GRAINED SANDS, WET
	SS	79	123	0.0	RED-BROWN FINE TO MEDIUM GRAINED SANDS, WET
50	SS	83	67	0.0	RED-BROWN FINE TO MEDIUM GRAINED SANDS, WET

WELL CONSTRUCTION DETAILS



GAMMA RAY LOG

COUNTS PER SECOND/DIVISION = 5	CASING TYPE: 2" STAINLESS STEEL
DISPLACEMENT = 0	TOP OF LOG = GROUND SURFACE
RATE OF LOGGING = 15 FT/MIN.	DATE LOGGED: 06/17/91



DEPTH (FEET)	RELATIVE % CLAY
0	98
10	63
20	40
30	31
40	19
50	14

NOTES

- BENTONITE LAYER ABOVE THE GROUT TO INSURE A GOOD SURFACE SEAL
- INCREASED CLAY CONTENT
- BENTONITE SEAL
- DECREASING CLAY CONTENT WITH DEPTH

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MW-59
MONITORING WELL
COLLIERVILLE SITE
COLLIERVILLE, TN.

DATE: 06/20/91 | DWG NAME: CGRLG59A

GAMMA LOG MW-59

LOGGED BY: DAVID FUEHRER

LOGGING DEVICE: MT. SOPRIS MODEL 1000C DUAL LOGGER

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS	WELL CONSTRUCTION DETAILS
60	SS	83	72	0.0	RED-BROWN FINE TO MEDIUM GRAINED SANDS, WET	SAND PACK/ FORMATION COLLAPSE; 0.010 CONTINUOUS SLOT, STAINLESS STEEL WELL SCREEN
70					BORING TERMINATED AT 60.0' AND THE WELL SET AT 59.30' ON 5/30/91	* DUE TO HEAVING SANDS, THE BENTONITE SEAL WAS DISPLACED ABOVE THE ORIGINAL SETTING POINT.
80						
90						
100						

GAMMA RAY LOG

COUNTS PER SECOND/DIVISION = 5

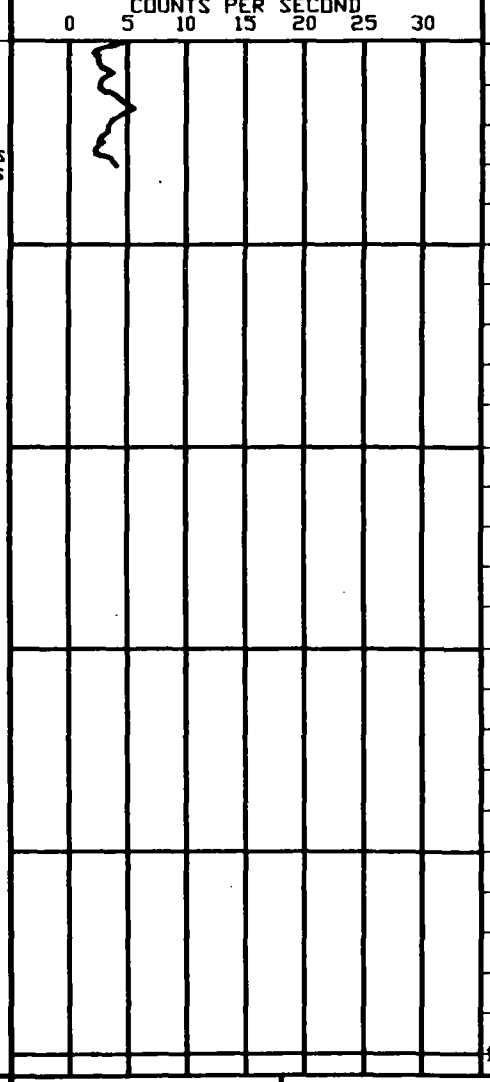
DISPLACEMENT = 0

RATE OF LOGGING = 15 FT/MIN.

CASING TYPE: 2" STAINLESS STEEL

TOP OF LOG = GROUND SURFACE

DATE LOGGED: 06/17/91



NOTES

SCREEN

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5724 SUMMER TREE DR. MEMPHIS, TN 38134 (901)372-7962

MW-59
MONITORING WELL
COLLIERVILLE SITE
COLLIERVILLE, TN.

DATE: 06/20/91

DWG NAME: CGRLG59B

GAMMA LOG
MW-59

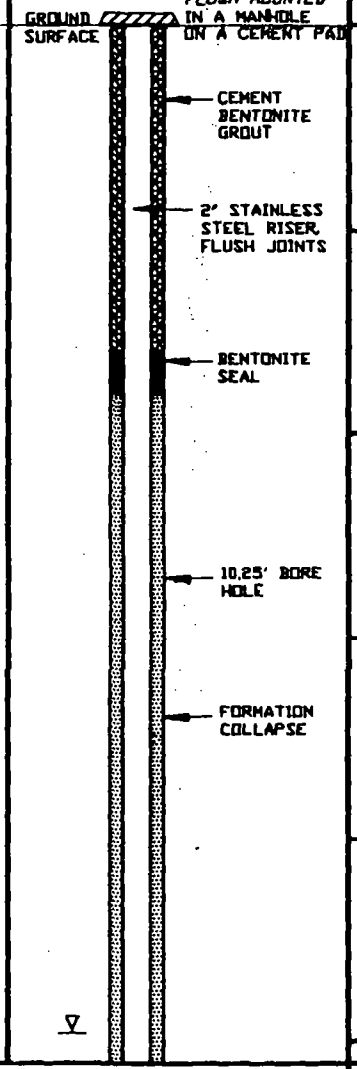
LOGGED BY: DAVID FUEHRER

LOGGING DEVICE: MT. SOPRIS MODEL 1000C DUAL LOGGER

TOP OF CASING ELEVATION: 336.88'
GROUND SURFACE ELEVATION: 337.15'

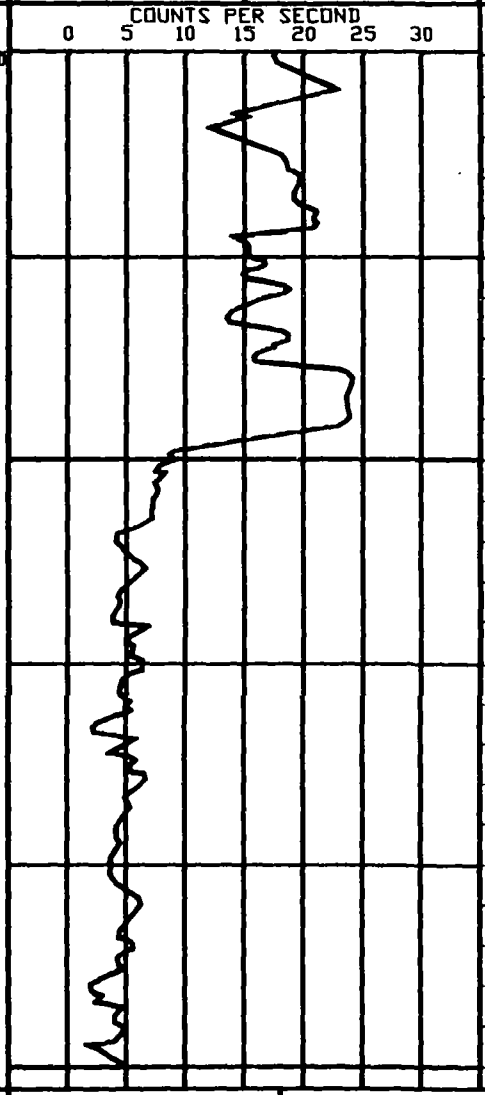
DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
	SS	50	6	0.0	BROWN-GRAY SILTY CLAY WITH BROWN ORGANIC INCLUSIONS
10	SS	50	14	0.0	BROWN-GRAY SILTY CLAY WITH BROWN ORGANIC INCLUSIONS
	SS	83	17	0.0	BROWN-GRAY CLAYEY SILT WITH VERY FINE GRAINED SAND, MOIST TO WET
20	SS	50	33	0.0	GRAY FINE TO MEDIUM GRAINED SAND GRADING TO BROWN-GRAY MEDIUM TO COARSE SAND WITH GRAVEL, MOIST TO WET
	SS	58	42	0.0	ORANGE-BLACK-GRAY FINE TO MEDIUM GRAINED SAND, WET
30	SS	79	110	0.0	BROWN MEDIUM TO COARSE GRAINED SAND AND GRAVEL WITH BLACK MEDIUM TO COARSE GRAINED SAND, WET
	SS	54	54	0.0	BROWN MEDIUM GRAINED SAND WITH A TRACE OF GRAVEL, WET
40	SS	50	83	0.0	BROWN MEDIUM GRAINED SAND WITH A TRACE OF COARSE SAND, WET
	SS	75	37	0.0	BROWN MEDIUM TO COARSE GRAINED SAND WITH A TRACE OF FINE TO MEDIUM GRAINED SAND, WET
50	SS	54	56	0.0	BROWN MEDIUM TO COARSE SAND AND FINE PEA GRAVEL, BLACK DISCOLORATION, WET

WELL CONSTRUCTION DETAILS



GAMMA RAY LOG

COUNTS PER SECOND/DIVISION = 5
DISPLACEMENT = 0
RATE OF LOGGING = 15 FT/MIN.
CASING TYPE: 2" STAINLESS STEEL
TOP OF LOG = GROUND SURFACE
DATE LOGGED: 06/17/91



DEPTH (FEET)	RELATIVE % CLAY
	64
	71
	53
	24
	16
	13
	10
	11
	11
	10

NOTES

- INCREASED CLAY CONTENT
- BENTONITE SEAL
- DECREASING CLAY CONTENT WITH DEPTH

Environmental and Safety Designs, Inc.
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5724 SUMMER TREE DR. MEMPHIS, TN 38134 (901) 378-7962

MW-61
MONITORING WELL
COLLIERVILLE SITE
COLLIERVILLE, TN.

DATE: 06/20/91
DWG NAME: CGRLG61A

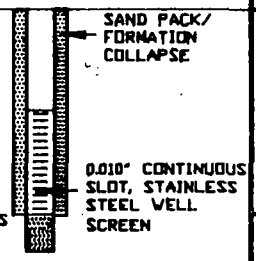
GAMMA LOG
MW-61

LOGGED BY: DAVID FUEHRER

LOGGING DEVICE: MT. SOPRIS MODEL 1000C DUAL LOGGER

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
	SS	83	61	0.0	BROWN FINE TO MOSTLY MEDIUM GRAINED SAND WITH A TRACE OF PEA GRAVEL, WET
60	SS	100	20	0.0	BROWN COARSE GRAINED SAND WITH PEA GRAVEL AND ROCK FRAGMENTS, WHITE-YELLOW CLAYEY SAND IN THE LAST 0.2'
	SS	100	20	0.0	WHITE-YELLOW FINE TO MEDIUM GRAINED SAND WITH RED STAINING, THIN DISCONTINUOUS LENSES OF WHITE CLAY AND BLACK DISCOLORATION
70					BORING TERMINATED AT 62.0' AND WELL SET AT 60.27' ON 5/30/91
80					
90					
100					

WELL CONSTRUCTION DETAILS

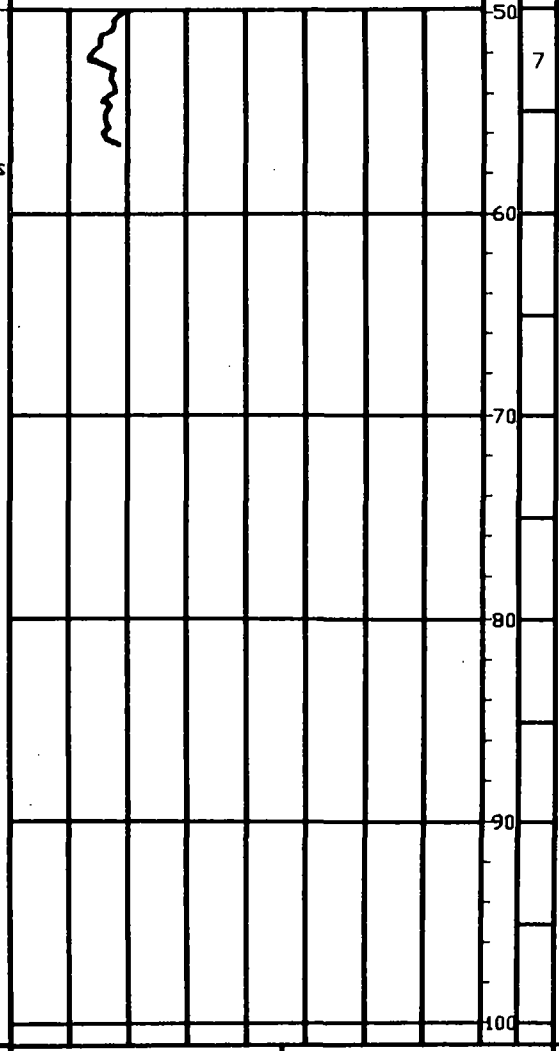


JACKSON CLAY IS ABSENT

* DUE TO HEAVING SANDS, THE BENTONITE SEAL WAS DISPLACED ABOVE THE ORIGINAL SETTING POINT

GAMMA RAY LOG

COUNTS PER SECOND/DIVISION = 5	CASING TYPE: 2" STAINLESS STEEL
DISPLACEMENT = 0	TOP OF LOG = GROUND SURFACE
RATE OF LOGGING = 15 FT/MIN.	DATE LOGGED: 06/17/91



DEPTH (FEET)	RELATIVE % CLAY
50	7

NOTES

SCREEN

Environmental and Safety Designs, Inc.

EN SAFE®

5724 SUMMER TREE DR. MEMPHIS, TN. 38134 (901)372-7962

MW-61
MONITORING WELL
COLLIERVILLE SITE
COLLIERVILLE, TN.

DATE: 06/20/91 | DWG NAME: CGRLG61B

GAMMA LOG MW-61

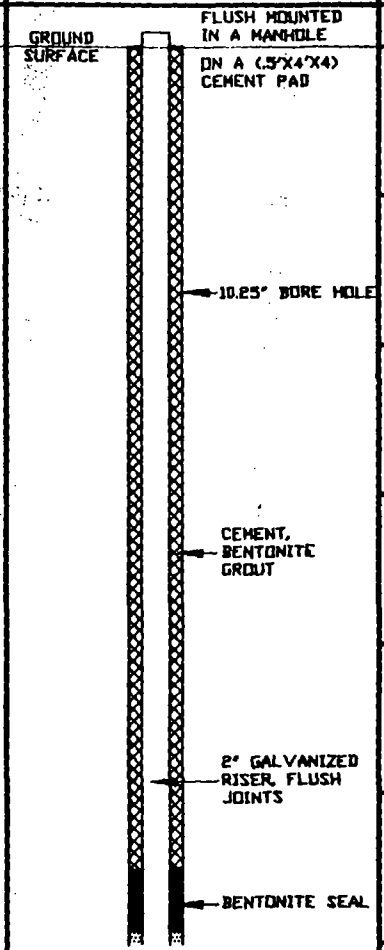
LOGGED BY: DAVID FUEHRER

LOGGING DEVICE: MT. SOPRIS MODEL 1000C DUAL LOGGER

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
5	SS	83	10	0.2	BROWN-GRAY MOTTLED SILTY CLAY W/ IRON STAINS, CEMENT CHIPS AND WIRE.
10	SS	90	13	0.2	BROWN-ORANGE MOTTLED SILTY CLAY W/ ORGANIC STAINS.
15	SS	90	16	0.2	SAME W/ TRACE OF PEBBLES & ROCK FRAGMENTS.
20	SS	90	22	0.2	BROWN-RED MOTTLED SILTY CLAY W/ IRON & ORGANIC STAINS, PEBBLES & A TRACE OF SAND.
25	SS	95	76	0.2	BROWN-GRAY SILTY CLAY, WET, GRADING TO SILTY SAND W/ AN INTERBEDDED CLAY STREAK BECOMING BROWN MEDIUM TO COARSE SAND W/ FINE GRAY CLAY LAYERS.
30	SS	83	75	0.2	WHITE FINE GRAINED SAND W/ ORGANIC STAINS & A FEW THIN CLAY STREAKS.
35	SS	80	67	0.2	WHITE-BROWN/RED MOTTLED SILTY FINE GRAINED SAND W/ A FEW THIN CLAY STREAKS.
40	SS	90	67	0.2	WHITE FINE TO MEDIUM GRAINED SAND.
45	SS	90	42	0.2	SAME W/ A TRACE OF CLAY.
50	SS	90	26	0.2	ORANGE/YELLOW MEDIUM TO COARSE GRAINED SAND W/ A THIN STRINGER OF RED CLAY.
55	SS	75	60	0.2	SAME W/ SLIGHTLY HIGHER PERCENTAGES OF FINE GRAINED SAND & A FEW THIN CLAY STREAKS.
60	SS	90	86	0.2	BROWN-WHITE/RED MOTTLED FINE TO MEDIUM GRAINED SAND W/ A FEW THIN CLAY LAMINATIONS.

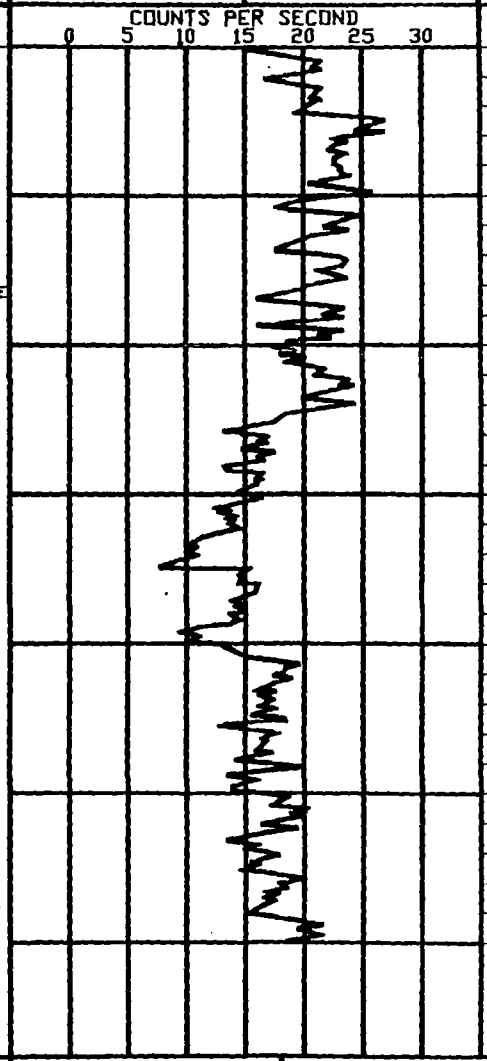
PAGE: 1 of 2

WELL CONSTRUCTION DETAILS



GAMMA RAY LOG

COUNTS PER SECOND/DIVISION = 5
DISPLACEMENT = 0
RATE OF LOGGING = 15 FT/MIN.
CASING TYPE: 8" STAINLESS AND GALVANIZED STEEL
TOP OF LOG = GROUND SURFACE
DATE LOGGED 09/14/90



RELATIVE % CLAY	NOTES
66	
75	INCREASED CLAY CONTENT
57	
52	
42	
30	
27	
27	
33	
37	INCREASED CLAY CONTENT
34	
X	BENTONITE SEAL. GAMMA RESPONSE PARTIALLY MASKED DUE TO INCREASED CLAY CONTENT IN SURROUNDING SECTION.

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EN SAFE®

5724 SUMMERTREES DR. MEMPHIS, TN. 38134 (901)372-7962

CMW-001

COLLIERVILLE SITE
COLLIERVILLE, TN.

DWG DATE: 02/20/91

DWG NAME: CARGRL1

GAMMA LOG CMW-001

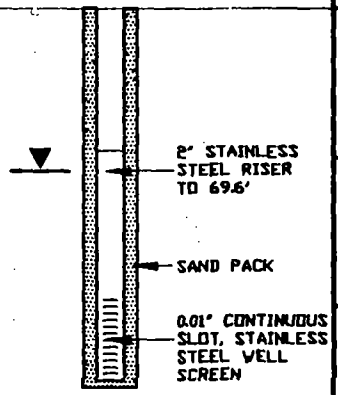
LOGGED BY: GUY MONTFORT

LOGGING DEVICE: MT. SOPRIS MODEL 1000C DUAL LOGGER

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
65	SS	87	90	0.2	WHITE-BROWN FINE TO MEDIUM GRAINED SAND.
70	SS	83	86	0.2	SAME WITH A THIN CLAY STREAK.
75	SS	90	15	0.2	BROWN-WHITE/GRAY FINE TO MEDIUM GRAINED CLAYEY SAND W/ A THIN GRAY-RED CLAY STREAK. MOIST BELOW 74.5 FT.
80	SS	90	16	0.2	LIGHT GRAY SILTY CLAY MIXED W/ FINE TO MEDIUM GRAINED SAND IN ALTERNATING THIN LAMINATIONS. VERY MOIST TO WET.
85	SS	95	9	0.2	SAME, WET.
					BORING TERMINATED @ 85.0 FT. & WELL SET ON 8/25/90.

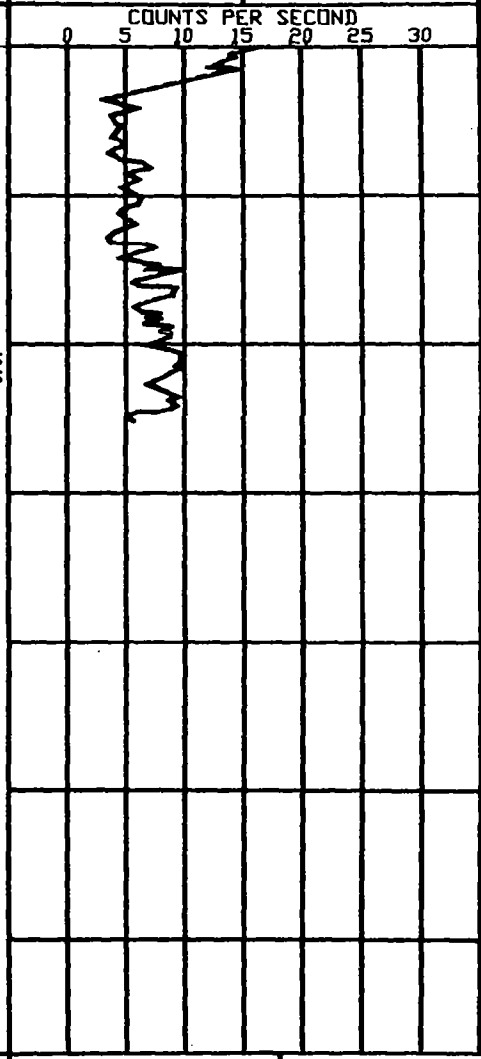
PAGE: 2 of 2

WELL CONSTRUCTION DETAILS



GAMMA RAY LOG

COUNTS PER SECOND/DIVISION = 5
DISPLACEMENT = 0
RATE OF LOGGING = 15 FT/MIN.
CASING TYPE: 2" STAINLESS AND GALVANIZED STEEL
TOP OF LOG = GROUND SURFACE
DATE LOGGED: 09/14/90



DEPTH (FEET)	RELATIVE % CLAY	NOTES
	6	
	8	
	11	DECREASED CLAY CONTENT
	12	SCREEN

Environmental and Safety Designs, Inc.

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CMW-001

COLLIERVILLE SITE
COLLIERVILLE, TN.

DWG DATE: 02/20/91 | DWG NAME: CARGRL1B

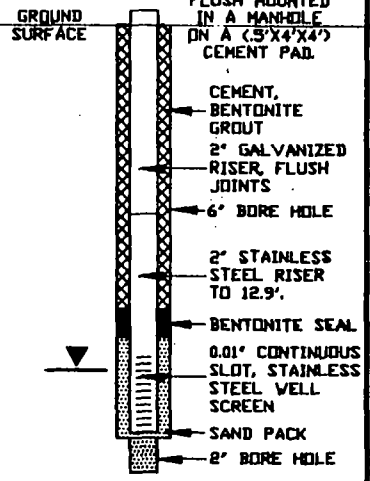
GAMMA LOG
CMW-001

LOGGED BY: GUY MONTFORT

LOGGING DEVICE: MT. SOPRIS MODEL 1000C DUAL LOGGER

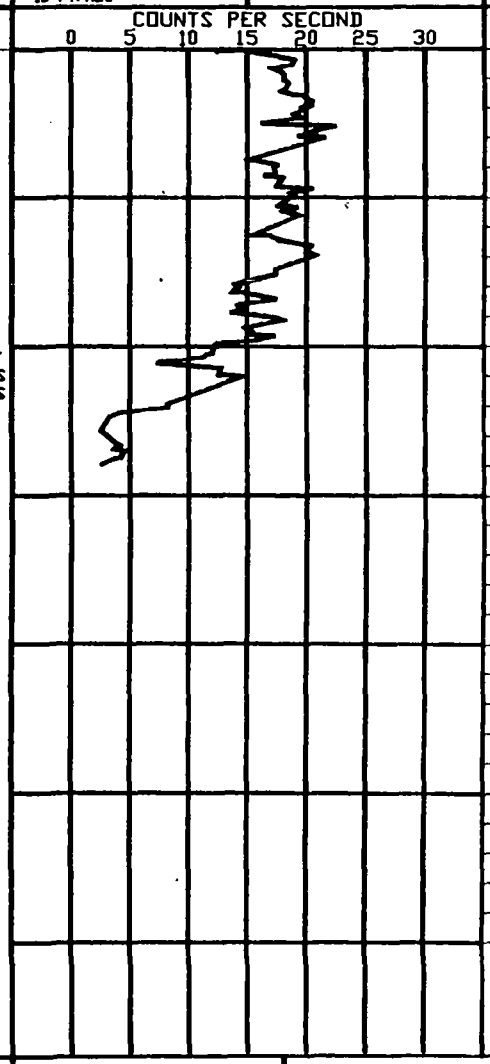
DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
					NOTE: SPLIT SPOON SAMPLES TAKEN @ 10.0 FT. INTERVALS BEFORE CLAY OR WATER.
5	SS	83	19	0.2	BROWN-GRAY MOTTLED SILTY CLAY W/ ABUNDANT PEBBLES & ROCK FRAGMENTS.
10					CUTTINGS: IRON NODULES, PINK CLAY, GRAY-RED CLAY, BROWN FINE SAND
20	SS	50	112	0.2	BROWN-RED INTERLAMINATED FINE TO MEDIUM GRAINED SAND.
25	SS	75	24	0.2	BROWN-RED MEDIUM TO COARSE SAND, WET.
30	SS	95	29	0.2	BROWN-RED COARSE SAND, WET.
					BORING TERMINATED @ 30.0' AND WELL SET @ 27.9' ON 8/23/90.

WELL CONSTRUCTION DETAILS



GAMMA RAY LOG

COUNTS PER SECOND/DIVISION = 5
CASING TYPE: 2" STAINLESS AND GALVANIZED STEEL
DISPLACEMENT = 0
TOP OF LOG = GROUND SURFACE
RATE OF LOGGING = 15 FT/MIN.
DATE LOGGED 09/14/90



RELATIVE % CLAY	NOTES
83	INCREASED CLAY CONTENT
60	
60	
	BENTONITE SEAL GAMMA RESPONSE PARTIALLY MASKED DUE TO INCREASED CLAY CONTENT IN SURROUNDING SECTION.
6	SCREEN

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CMW-002

COLLIERVILLE SITE
COLLIERVILLE, TN.

DWG DATE: 02/20/91 | DWG NAME: CARGRL2

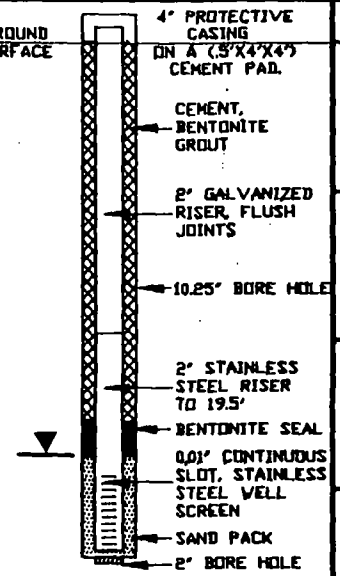
GAMMA LOG CMW-002

LOGGED BY: GUY MONTFORT

LOGGING DEVICE: MT. SOPRIS MODEL 1000C DUAL LOGGER

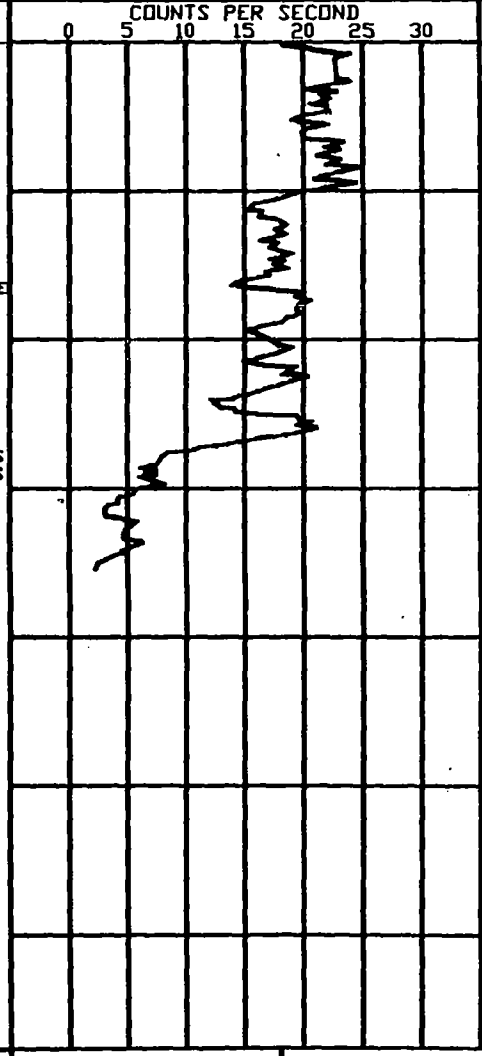
DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	VAPOR CONC. (PPM)	DESCRIPTION OF SUBSURFACE MATERIALS
					NOTE: SPLIT SPOON SAMPLES TAKEN @ 10.0 FT. INTERVALS BEFORE CLAY OR WATER.
					CUTTINGS: DARK BROWN TO BROWN SILTY CLAY
10	SS	90	12	0.2	DARK BROWN-GRAY MOTTLED CLAYEY SILT W/ A THICK GRAY SILTY CLAY LAYER.
20	SS	87	36	0.2	BROWN-GRAY/RED CLAYEY SAND & GRAVEL W/ BLACK STAINING.
					CUTTINGS: BROWN SILTY SAND BROWN SILTY CLAYEY SAND
30	SS	90	27	0.2	LIGHT BROWN FINE GRAINED SAND, MOIST-WET.
35	SS	95	25	0.2	LIGHT BROWN FINE GRAINED SAND, WET.
					BORING TERMINATED @ 35.0' AND WELL SET @ 34.5' ON 8/23/90.

WELL CONSTRUCTION DETAILS



GAMMA RAY LOG

COUNTS PER SECOND/DIVISION = 5
DISPLACEMENT = 0
RATE OF LOGGING = 15 FT/MIN.
CASING TYPE: 2" STAINLESS AND GALVANIZED STEEL
TOP OF LOG = GROUND SURFACE
DATE LOGGED: 09/14/90



RELATIVE % CLAY	NOTES
80	
75	INCREASED CLAY CONTENT
58	
59	
60	BENTONITE SEAL GAMMA RESPONSE INTENSITY IS SIMILIAR TO RESPONSE FROM SURROUNDING NATURAL MATERIAL.
11	SCREEN

Environmental and Safety Designs, Inc.

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CMW-003

COLLIERVILLE SITE
COLLIERVILLE, TN.

DWG DATE: 02/20/91 | DWG NAME: CARGRL3

GAMMA LOG CMW-003

LOGGED BY: GUY MONTFORT

LOGGING DEVICE: MT. SOPRIS MODEL 1000C DUAL LOGGER

APPENDIX G

PHASE II AND PHASE III COLLIERVILLE SITE DATA

SOIL DATA

NOTES:

1) All "B" prefixes used in sample identifications represent samples collected from soil borings that were not completed as monitoirng wells.
2) All "MW" prefixes used in sample identifications represent samples collected from soil borings that were completed as monitoring wells.
3) The number following the prefix is the number of the boring. The locations of these borings are shown on Plate 1.
4) The number at the end of the sample identification represents the depth at which the sample was collected. These numbers may be matched with the boring logs for true sample depth.
5) See Appendix A for explanations of data qualifiers.

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	B41-7	B42-11	B43-4	B44-3
		SAMPLING DATE	07/09/90	07/10/90	07/11/90	07/12/90
		DEPTH (FT)	35	55	20	15
		MATRIX	SOIL	SOIL	SOIL	SOIL
CMP	CL	COMPOUND UNITS	mg/kg	mg/kg	mg/kg	mg/kg
101	M	Antimony	BDL 8.9	BDL 7.7	BDL 8.4	BDL 8
102	M	Arsenic	1.8 B	BDL 0.44	1.7 B	1.7 B
103	M	Beryllium	0.48 B	BDL 0.22	0.45 B	0.39 B
104	M	Cadmium	BDL 1.3	BDL 1.1	BDL 1.2	BDL 1.1
105	M	Chromium	11.7	17.6	16.6	18.6
106	M	Copper	6.7	2.7 B	7.2	6.8
107	M	Lead	6.4	3.4	7.4	6.8
108	M	Mercury	BDL 0.13	BDL 0.1	BDL 0.1	BDL 0.11
109	M	Nickel	BDL 9.9	BDL 8.5	BDL 9.3	BDL 8.9
110	M	Selenium	BDL 0.51	BDL 0.44	BDL 2.4	BDL 2.3
111	M	Silver	BDL 2	BDL 1.8	BDL 1.9	BDL 1.8
112	M	Thallium	BDL 0.51	BDL 0.44	BDL 0.48	BDL 0.46
113	M	Zinc	27.4	4 B	17.5	20.5
114	M	Barium	17.4 B	11.3 B	73.4	65.8
115	M	Iron	16200	5200	10200	10100
116	M	Manganese	42.8	27.1	315	111
117	M	Vanadium	22.7	17.1	22.2	21.2
118	M	Aluminum	5910	2560	12500	15500
120	M	Cobalt	6.2 B	1.4 B	5.9 B	1.8 B
121	M	Magnesium	606 B	204 B	1020 B	1180
129	M	Calcium	1300	536 B	1270	1390
130	M	Sodium	173 B	170 B	467 B	438 B
131	M	Potassium	BDL 755	BDL 651	BDL 710	BDL 682
		UNITS	ug/kg	ug/kg	ug/kg	ug/kg
203	V	Benzene	BDL 6	2 B J	BDL 6	BDL 6
205	V	Bromoform	BDL 6	BDL 5	BDL 6	BDL 6
206	V	Carbon tetrachloride	BDL 6	BDL 5	BDL 6	BDL 6
207	V	Chlorobenzene	BDL 6	BDL 5	BDL 6	BDL 6
208	V	Dibromochloromethane	BDL 6	BDL 5	BDL 6	BDL 6
209	V	Chloroethane	BDL 13	BDL 11	BDL 12	BDL 11
211	V	Chloroform	BDL 6	BDL 5	BDL 6	BDL 6
212	V	Bromodichloromethane	BDL 6	BDL 5	BDL 6	BDL 6
214	V	1,1-Dichloroethane	BDL 6	BDL 5	BDL 6	BDL 6
215	V	1,2-Dichloroethane	BDL 6	BDL 5	BDL 6	BDL 6
216	V	1,1-Dichloroethene	BDL 6	BDL 5	BDL 6	BDL 6
217	V	1,2-Dichloropropane	BDL 6	BDL 5	BDL 6	BDL 6
218	V	Cis-1,3-Dichloropropene	BDL 6	BDL 5	BDL 6	BDL 6
219	V	Ethylbenzene	BDL 6	BDL 5	BDL 6	BDL 6
220	V	Bromomethane	BDL 13	BDL 11	BDL 12	BDL 11
221	V	Chloromethane	BDL 13	BDL 11	BDL 12	BDL 11
222	V	Methylene chloride	78 B	9 B	11 B	17 B
223	V	1,1,2,2-Tetrachloroethane	BDL 6	BDL 5	BDL 6	BDL 6
224	V	Tetrachloroethene	BDL 6	BDL 5	BDL 6	BDL 6
225	V	Toluene	BDL 6	BDL 5	BDL 6	BDL 6
227	V	1,1,1-Trichloroethane	BDL 6	BDL 5	BDL 6	BDL 6
228	V	1,1,2-Trichloroethane	BDL 6	BDL 5	BDL 6	BDL 6
229	V	Trichloroethene	BDL 6	BDL 5	2 J	BDL 6
231	V	Vinyl chloride	BDL 13	BDL 11	BDL 12	BDL 11
250	V	Trans-1,3-Dichloropropene	BDL 6	BDL 5	BDL 6	BDL 6
251	V	Styrene	BDL 6	BDL 5	BDL 6	BDL 6
252	V	Acetone	66 B	11 B	11 B	16 B
253	V	2-Butanone	BDL 13	BDL 11	12 B	BDL 11
254	V	Carbon disulfide	BDL 6	BDL 5	BDL 6	BDL 6
255	V	2-Hexanone	BDL 13	BDL 11	BDL 12	BDL 11
256	V	4-Methyl-2-pentanone	BDL 13	BDL 11	BDL 12	BDL 11
257	V	Vinyl acetate	BDL 13	BDL 11	BDL 12	BDL 11
289	V	Xylenes (Total)	BDL 6	BDL 5	BDL 6	BDL 6
299	V	1,2-Dichloroethene(Total)	BDL 6	BDL 5	5 J	BDL 6

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	B45-1	B46-4	B47-9	B48-1
		SAMPLING DATE	07/13/90	07/16/90	07/17/90	07/18/90
		DEPTH (FT)	5	20	45	5
		MATRIX	SOIL	SOIL	SOIL	SOIL
CMP	CL	COMPOUND UNITS	mg/kg	mg/kg	mg/kg	mg/kg
101	M	Antimony	BDL 8.1	BDL 8.3	BDL 7.9	BDL 8.8
102	M	Arsenic	5.6	1.6 B	2.6	9.7
103	M	Beryllium	BDL 0.23	0.38 B	0.5 B	0.38 B
104	M	Cadmium	BDL 1.2	BDL 1.2	BDL 1.1	BDL 1.3
105	M	Chromium	17.5	25.5	30.3	20.5
106	M	Copper	14.7	7.1	7.3	19.6
107	M	Lead	13.8	4.1	1.5	11.3
108	M	Mercury	BDL 0.1	BDL 0.1	BDL 0.1	BDL 0.1
109	M	Nickel	19	BDL 9.3	9.2	18.3
110	M	Selenium	BDL 0.46	BDL 2.4	BDL 0.4	BDL 0.5
111	M	Silver	BDL 1.9	BDL 1.9	BDL 1.8	BDL 2
112	M	Thallium	BDL 0.46	BDL 0.48	BDL 0.4	BDL 0.5
113	M	Zinc	39.8	21.8	25	61.7
114	M	Barium	150	40.6 B	132	126
115	M	Iron	15200	14100	34300	23200
116	M	Manganese	1280	161	1640	408
117	M	Vanadium	26.4	22.9	15.6	33.2
118	M	Aluminum	8210	9000	2110	12500
120	M	Cobalt	18.5	3.5 B	11.2 B	19.9
121	M	Magnesium	943 B	827 B	42.5 B	3070
129	M	Calcium	491 B	1010 B	149 B	1280
130	M	Sodium	516 B	465 B	121 B	404 B
131	M	Potassium	BDL 691	BDL 707	BDL 672	1070 B
		UNITS	ug/kg	ug/kg	ug/kg	ug/kg
203	V	Benzene	BDL 6	BDL 6	BDL 5	BDL 6
205	V	Bromoform	BDL 6	BDL 6	BDL 5	BDL 6
206	V	Carbon tetrachloride	BDL 6	BDL 6	BDL 5	BDL 6
207	V	Chlorobenzene	BDL 6	BDL 6	BDL 5	BDL 6
208	V	Dibromochloromethane	BDL 6	BDL 6	BDL 5	BDL 6
209	V	Chloroethane	BDL 12	BDL 12	BDL 11	BDL 12
211	V	Chloroform	BDL 6	1 J	BDL 5	BDL 6
212	V	Bromodichloromethane	BDL 6	BDL 6	BDL 5	BDL 6
214	V	1,1-Dichloroethane	BDL 6	BDL 6	BDL 5	BDL 6
215	V	1,2-Dichloroethane	BDL 6	BDL 6	BDL 5	BDL 6
216	V	1,1-Dichloroethene	BDL 6	BDL 6	BDL 5	BDL 6
217	V	1,2-Dichloropropane	BDL 6	BDL 6	BDL 5	BDL 6
218	V	Cis-1,3-Dichloropropene	BDL 6	BDL 6	BDL 5	BDL 6
219	V	Ethylbenzene	BDL 6	BDL 6	BDL 5	BDL 6
220	V	Bromomethane	BDL 12	BDL 12	BDL 11	BDL 12
221	V	Chloromethane	BDL 12	BDL 12	BDL 11	BDL 12
222	V	Methylene chloride	28 B	57 B	13 B	13 B
223	V	1,1,2,2-Tetrachloroethane	BDL 6	BDL 6	BDL 5	BDL 6
224	V	Tetrachloroethene	BDL 6	BDL 6	BDL 5	BDL 6
225	V	Toluene	BDL 6	BDL 6	BDL 5	BDL 6
227	V	1,1,1-Trichloroethane	BDL 6	BDL 6	BDL 5	BDL 6
228	V	1,1,2-Trichloroethane	BDL 6	BDL 6	BDL 5	BDL 6
229	V	Trichloroethene	BDL 6	56	BDL 5	BDL 6
231	V	Vinyl chloride	BDL 12	BDL 12	BDL 11	1 J
250	V	Trans-1,3-Dichloropropene	BDL 6	BDL 6	BDL 5	BDL 6
251	V	Styrene	BDL 6	BDL 6	BDL 5	BDL 6
252	V	Acetone	70 B	11 B J	27 B	29 B
253	V	2-Butanone	6 J	BDL 12	BDL 11	BDL 12
254	V	Carbon disulfide	BDL 6	BDL 6	BDL 5	BDL 6
255	V	2-Hexanone	BDL 12	BDL 12	BDL 11	BDL 12
256	V	4-Methyl-2-pentanone	BDL 12	BDL 12	BDL 11	BDL 12
257	V	Vinyl acetate	BDL 12	BDL 12	BDL 11	BDL 12
289	V	Xylenes (Total)	BDL 6	BDL 6	BDL 5	BDL 6
299	V	1,2-Dichloroethene(Total)	BDL 6	2 J	BDL 5	BDL 6

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	B49-10	B49-11	MW27-12	MW29-12
		SAMPLING DATE	07/18/90	07/18/90	08/21/90	08/16/90
		DEPTH (FT)	50	55	60	60
		MATRIX	SOIL	SOIL	SOIL	SOIL
CMP	CL	COMPOUND UNITS	mg/kg	mg/kg	mg/kg	mg/kg
101	M	Antimony	BDL 7.9	BDL 7.6	BDL 9.1	BDL 10.6
102	M	Arsenic	3.3	BDL 0.44	4	1.4 B
103	M	Beryllium	BDL 0.23	BDL 0.22	BDL 0.3	BDL 0.35
104	M	Cadmium	BDL 1.1	BDL 1.1	BDL 0.64	BDL 0.74
105	M	Chromium	24	1.7 B	8.1	4.7
106	M	Copper	5.6 B	BDL 1.7	BDL 1.3	3 B
107	M	Lead	3.8	BDL 0.44	2.6	1.2
108	M	Mercury	BDL 0.1	BDL 0.1	BDL 0.11	BDL 0.12
109	M	Nickel	BDL 8.8	BDL 8.5	BDL 2	BDL 2.3
110	M	Selenium	BDL 0.45	BDL 0.44	BDL 0.26	BDL 0.3
111	M	Silver	BDL 1.8	BDL 1.7	BDL 2	BDL 2.4
112	M	Thallium	BDL 0.45	BDL 0.44	BDL 0.15	BDL 0.17
113	M	Zinc	7.5	3.3 B	4.5	6.4
114	M	Barium	18.9 B	2.1 B	9.8 B	BDL 10.2
115	M	Iron	12500	267	4330	4580
116	M	Manganese	365	4	22.4	51.7
117	M	Vanadium	17.8	BDL 0.87	15.1	4.2 B
118	M	Aluminum	868	699	2410	535
120	M	Cobalt	2 B	BDL 0.87	BDL 4.4	BDL 5.1
121	M	Magnesium	21.7 B	21.6 B	BDL 216	BDL 250
129	M	Calcium	130 B	186 B	527 B	BDL 145
130	M	Sodium	125 B	BDL 98.5	BDL 258	BDL 300
131	M	Potassium	BDL 673	BDL 648	BDL 258	BDL 299
		UNITS	ug/kg	ug/kg	ug/kg	ug/kg
203	V	Benzene	BDL 6	BDL 6	BDL 6	BDL 6
205	V	Bromoform	BDL 6	BDL 6	BDL 6	BDL 6
206	V	Carbon tetrachloride	BDL 6	BDL 6	BDL 6	BDL 6
207	V	Chlorobenzene	BDL 6	BDL 6	BDL 6	BDL 6
208	V	Dibromochloromethane	BDL 6	BDL 6	BDL 6	BDL 6
209	V	Chloroethane	BDL 11	BDL 11	BDL 12	BDL 12
211	V	Chloroform	BDL 6	BDL 6	BDL 6	BDL 6
212	V	Bromodichloromethane	BDL 6	BDL 6	BDL 6	BDL 6
214	V	1,1-Dichloroethane	BDL 6	BDL 6	BDL 6	BDL 6
215	V	1,2-Dichloroethane	BDL 6	BDL 6	BDL 6	BDL 6
216	V	1,1-Dichloroethene	BDL 6	BDL 6	BDL 6	BDL 6
217	V	1,2-Dichloropropane	BDL 6	BDL 6	BDL 6	BDL 6
218	V	Cis-1,3-Dichloropropene	BDL 6	BDL 6	BDL 6	BDL 6
219	V	Ethylbenzene	BDL 6	BDL 6	BDL 6	BDL 6
220	V	Bromomethane	BDL 11	BDL 11	BDL 12	BDL 12
221	V	Chloromethane	BDL 11	BDL 11	BDL 12	BDL 12
222	V	Methylene chloride	21 B	8 B	8 B	4 B J
223	V	1,1,2,2-Tetrachloroethane	BDL 6	BDL 6	BDL 6	BDL 6
224	V	Tetrachloroethene	BDL 6	BDL 6	BDL 6	BDL 6
225	V	Toluene	BDL 6	BDL 6	BDL 6	BDL 6
227	V	1,1,1-Trichloroethane	BDL 6	BDL 6	BDL 6	BDL 6
228	V	1,1,2-Trichloroethane	BDL 6	BDL 6	BDL 6	BDL 6
229	V	Trichloroethene	8	BDL 6	BDL 6	BDL 6
231	V	Vinyl chloride	BDL 11	BDL 11	BDL 12	BDL 12
250	V	Trans-1,3-Dichloropropene	BDL 6	BDL 6	BDL 6	BDL 6
251	V	Styrene	BDL 6	BDL 6	BDL 6	BDL 6
252	V	Acetone	100 B	26 B	32	41 B
253	V	2-Butanone	2 B J	BDL 11	BDL 12	BDL 12
254	V	Carbon disulfide	BDL 6	BDL 6	BDL 6	BDL 6
255	V	2-Hexanone	BDL 11	BDL 11	BDL 12	BDL 12
256	V	4-Methyl-2-pentanone	BDL 11	BDL 11	BDL 12	BDL 12
257	V	Vinyl acetate	BDL 11	BDL 11	BDL 12	BDL 12
289	V	Xylenes (Total)	BDL 6	BDL 6	BDL 6	BDL 6
299	V	1,2-Dichloroethene(Total)	BDL 6	BDL 6	BDL 6	BDL 6

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	MW31-10	MW33-11	MW35-6	MW37-7
		SAMPLING DATE	08/02/90	07/27/90	07/30/90	07/24/90
		DEPTH (FT)	50	55	30	35
		MATRIX	SOIL	SOIL	SOIL	SOIL
CMP	CL	COMPOUND UNITS	mg/kg	mg/kg	mg/kg	mg/kg
101	M	Antimony	BDL 8.2	BDL 8.1	BDL 9	BDL 7.2
102	M	Arsenic	6.6	1.4 B	1.1 B	0.65 B
103	M	Beryllium	0.48 B	BDL 0.23	0.79 B	BDL 0.21
104	M	Cadmium	BDL 1.2	BDL 1.2	BDL 1.3	BDL 1
105	M	Chromium	24.6	9.6	10.9	10.9
106	M	Copper	4.8 B	3.2 B	4.1 B	3.2 B
107	M	Lead	0.66 B	2.3	5.7	0.49 B
108	M	Mercury	BDL 0.1	BDL 0.1	BDL 0.11	BDL 0.1
109	M	Nickel	12	BDL 9	BDL 10	BDL 8.1
110	M	Selenium	BDL 0.47	BDL 0.46	BDL 0.51	BDL 0.41
111	M	Silver	BDL 1.9	BDL 1.9	BDL 2.1	BDL 1.7
112	M	Thallium	BDL 0.47	BDL 0.46	BDL 0.51	BDL 0.41
113	M	Zinc	17.3	6.8	36.3	9
114	M	Barium	13.4 B	4.1 B	38.8 B	4.1 B
115	M	Iron	36500	12900	31300	7330
116	M	Manganese	354	53.9	349	26.6
117	M	Vanadium	12.5	5.6 B	29.5	7.7 B
118	M	Aluminum	1400	678	2420	2030
120	M	Cobalt	7.5 B	5.8 B	2.4 B	1.2 B
121	M	Magnesium	40.6 B	27.2 B	252 B	56.6 B
129	M	Calcium	155 B	56.1 B	642 B	151 B
130	M	Sodium	BDL 106	BDL 105	BDL 116	109 B
131	M	Potassium	BDL 698	BDL 690	BDL 764	BDL 616
		UNITS	ug/kg	ug/kg	ug/kg	ug/kg
203	V	Benzene	BDL 6	BDL 6	BDL 6	BDL 5
205	V	Bromoform	BDL 6	BDL 6	BDL 6	BDL 5
206	V	Carbon tetrachloride	BDL 6	BDL 6	BDL 6	BDL 5
207	V	Chlorobenzene	BDL 6	BDL 6	BDL 6	BDL 5
208	V	Dibromochloromethane	BDL 6	BDL 6	BDL 6	BDL 5
209	V	Chloroethane	BDL 12	BDL 12	BDL 13	BDL 10
211	V	Chloroform	BDL 6	BDL 6	BDL 6	2 J
212	V	Bromodichloromethane	BDL 6	BDL 6	BDL 6	BDL 5
214	V	1,1-Dichloroethane	BDL 6	BDL 6	BDL 6	BDL 5
215	V	1,2-Dichloroethane	BDL 6	BDL 6	BDL 6	BDL 5
216	V	1,1-Dichloroethene	BDL 6	BDL 6	BDL 6	BDL 5
217	V	1,2-Dichloropropane	BDL 6	BDL 6	BDL 6	BDL 5
218	V	Cis-1,3-Dichloropropene	BDL 6	BDL 6	BDL 6	BDL 5
219	V	Ethylbenzene	BDL 6	BDL 6	BDL 6	BDL 5
220	V	Bromomethane	BDL 12	BDL 12	BDL 13	BDL 10
221	V	Chloromethane	BDL 12	BDL 12	BDL 13	BDL 10
222	V	Methylene chloride	25 B	30 B	34 B	10 B
223	V	1,1,2,2-Tetrachloroethane	BDL 6	BDL 6	BDL 6	BDL 5
224	V	Tetrachloroethene	BDL 6	BDL 6	BDL 6	BDL 5
225	V	Toluene	4 J	6	BDL 6	BDL 5
227	V	1,1,1-Trichloroethane	BDL 6	BDL 6	BDL 6	BDL 5
228	V	1,1,2-Trichloroethane	BDL 6	BDL 6	BDL 6	BDL 5
229	V	Trichloroethene	BDL 6	BDL 6	BDL 6	BDL 5
231	V	Vinyl chloride	BDL 12	BDL 12	BDL 13	BDL 10
250	V	Trans-1,3-Dichloropropene	BDL 6	BDL 6	BDL 6	BDL 5
251	V	Styrene	BDL 6	BDL 6	BDL 6	BDL 5
252	V	Acetone	260 B E	27 B	31 B	20 B
253	V	2-Butanone	2 B J	2 B J	BDL 13	BDL 10
254	V	Carbon disulfide	BDL 6	BDL 6	BDL 6	BDL 5
255	V	2-Hexanone	BDL 12	BDL 12	BDL 13	BDL 10
256	V	4-Methyl-2-pentanone	BDL 12	BDL 12	BDL 13	BDL 10
257	V	Vinyl acetate	BDL 12	BDL 12	BDL 13	BDL 10
289	V	Xylenes (Total)	BDL 6	BDL 6	BDL 6	BDL 5
299	V	1,2-Dichloroethene(Total)	BDL 6	BDL 6	BDL 6	BDL 5

			SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
			SAMPLE ID	MW39-3	MW41-10	MW43-9	MW45-11
			SAMPLING DATE	08/01/90	07/18/90	08/17/90	08/24/90
			DEPTH (FT)	15	50	45	55
			MATRIX	SOIL	SOIL	SOIL	SOIL
CMP	CL	COMPOUND	UNITS	mg/kg	mg/kg	mg/kg	mg/kg
101	M	Antimony		BDL 8.1	BDL 7.4	14.4 B	11.3 B
102	M	Arsenic		3.1	1 B	4.7	1 B
103	M	Beryllium		0.54 B	BDL 0.21	4.5	4.4
104	M	Cadmium		BDL 1.2	BDL 1.1	2.5	1.5
105	M	Chromium		13.1	26.3	33.8	23.9
106	M	Copper		10.2	4.4 B	BDL 1.6	BDL 1.6
107	M	Lead		16.4	1.3	8.5	3.4
108	M	Mercury		BDL 0.12	BDL 0.11	BDL 0.12	BDL 0.13
109	M	Nickel		BDL 9.1	BDL 8.3	12.7	9.3 B
110	M	Selenium		BDL 0.47	BDL 0.43	BDL 0.3	BDL 0.31
111	M	Silver		BDL 1.9	BDL 1.7	BDL 2.4	BDL 2.5
112	M	Thallium		BDL 0.47	BDL 0.43	BDL 0.17	BDL 0.18
113	M	Zinc		22.6	12.5	23.6	30.3
114	M	Barium		99.3	4 B	35.1 B	34.4 B
115	M	Iron		22900	11400	66900	64500
116	M	Manganese		1030	61.3	245	171
117	M	Vanadium		31.8	13.6	38.3	35.5
118	M	Aluminum		13200	1400	3730	6970
120	M	Cobalt		15.1	2.3 B	6 B	BDL 5.3
121	M	Magnesium		1140 B	51.9 B	296 B	494 B
129	M	Calcium		1470	163 B	502 B	563 B
130	M	Sodium		373 B	BDL 96.2	BDL 301	BDL 311
131	M	Potassium		BDL 692	BDL 633	BDL 301	586 B
			UNITS	ug/kg	ug/kg	ug/kg	ug/kg
203	V	Benzene		BDL 6	BDL 5	BDL 31	BDL 6
205	V	Bromoform		BDL 6	BDL 5	BDL 31	BDL 6
206	V	Carbon tetrachloride		BDL 6	BDL 5	BDL 31	BDL 6
207	V	Chlorobenzene		BDL 6	BDL 5	BDL 31	BDL 6
208	V	Dibromochloromethane		BDL 6	BDL 5	BDL 31	BDL 6
209	V	Chloroethane		BDL 12	BDL 11	BDL 62	BDL 13
211	V	Chloroform		BDL 6	BDL 5	BDL 31	BDL 6
212	V	Bromodichloromethane		BDL 6	BDL 5	BDL 31	BDL 6
214	V	1,1-Dichloroethane		BDL 6	BDL 5	BDL 31	BDL 6
215	V	1,2-Dichloroethane		BDL 6	BDL 5	BDL 31	BDL 6
216	V	1,1-Dichloroethene		BDL 6	BDL 5	BDL 31	BDL 6
217	V	1,2-Dichloropropane		BDL 6	BDL 5	BDL 31	BDL 6
218	V	Cis-1,3-Dichloropropene		BDL 6	BDL 5	BDL 31	BDL 6
219	V	Ethylbenzene		BDL 6	BDL 5	BDL 31	BDL 6
220	V	Bromomethane		BDL 12	BDL 11	BDL 62	BDL 13
221	V	Chloromethane		BDL 12	BDL 11	BDL 62	BDL 13
222	V	Methylene chloride		22 B	23 B	BDL 31	BDL 6
223	V	1,1,2,2-Tetrachloroethane		BDL 6	BDL 5	BDL 31	BDL 6
224	V	Tetrachloroethene		BDL 6	BDL 5	BDL 31	BDL 6
225	V	Toluene		BDL 6	BDL 5	BDL 31	BDL 6
227	V	1,1,1-Trichloroethane		BDL 6	BDL 5	BDL 31	BDL 6
228	V	1,1,2-Trichloroethane		BDL 6	BDL 5	BDL 31	BDL 6
229	V	Trichloroethene		BDL 6	BDL 5	BDL 31	BDL 6
231	V	Vinyl chloride		BDL 12	BDL 11	BDL 62	BDL 13
250	V	Trans-1,3-Dichloropropene		BDL 6	BDL 5	BDL 31	BDL 6
251	V	Styrene		BDL 6	BDL 5	BDL 31	BDL 6
252	V	Acetone		36 B	28 B	350 B	BDL 13
253	V	2-Butanone		5 B J	2 B J	BDL 62	BDL 13
254	V	Carbon disulfide		BDL 6	BDL 5	BDL 31	BDL 6
255	V	2-Hexanone		BDL 12	BDL 11	BDL 62	BDL 13
256	V	4-Methyl-2-pentanone		BDL 12	BDL 11	BDL 62	BDL 13
257	V	Vinyl acetate		BDL 12	BDL 11	BDL 62	BDL 13
289	V	Xylenes (Total)		BDL 6	BDL 5	BDL 31	BDL 6
299	V	1,2-Dichloroethene(Total)		BDL 6	BDL 5	BDL 31	BDL 6

		SITE	COLLIERVILLE		COLLIERVILLE		COLLIERVILLE		COLLIERVILLE	
		SAMPLE ID	MW47-4		MW49-5		MW51-11		MW53-1	
		SAMPLING DATE	03/19/91		03/19/91		03/25/91		03/19/91	
		DEPTH (FT)	20		25		55		5	
		MATRIX	SOIL		SOIL		SOIL		SOIL	
CMP	CL	COMPOUND UNITS	mg/kg		mg/kg		mg/kg		mg/kg	
101	M	Antimony	BDL	0.11			BDL	0.1		
102	M	Arsenic	0.42 B				2.4			
103	M	Beryllium	BDL	0.3			0.83 B			
104	M	Cadmium	BDL	0.7			0.83 B			
105	M	Chromium	5.9				8.3			
106	M	Copper	BDL	1.2			BDL	1.2		
107	M	Lead	1.9				3.2			
108	M	Mercury	BDL	0.11			BDL	0.1		
109	M	Nickel	BDL	2.2			3.5 B			
110	M	Selenium	BDL	0.13			BDL	0.12		
111	M	Silver	BDL	1.4			BDL	1.4		
112	M	Thallium	BDL	0.13			BDL	0.12		
113	M	Zinc	4.4				11.2			
114	M	Barium	BDL	6.6			BDL	6.5		
115	M	Iron	673				6160			
116	M	Manganese	2.5 B				66.1			
117	M	Vanadium	2.3 B				3.7 B			
118	M	Aluminum	527				522			
120	M	Cobalt	BDL	1.7			3.5 B			
121	M	Magnesium	BDL	43			BDL	42.3		
129	M	Calcium	177 B				BDL	117		
130	M	Sodium	BDL	165			BDL	162		
131	M	Potassium	BDL	235			BDL	231		
		UNITS	ug/kg		ug/kg		ug/kg		ug/kg	
203	V	Benzene	BDL	5	BDL	5	BDL	5	BDL	6
205	V	Bromoform	BDL	5	BDL	5	BDL	5	BDL	6
206	V	Carbon tetrachloride	BDL	5	BDL	5	BDL	5	BDL	6
207	V	Chlorobenzene	BDL	5	BDL	5	BDL	5	BDL	6
208	V	Dibromochloromethane	BDL	5	BDL	5	BDL	5	BDL	6
209	V	Chloroethane	BDL	11	BDL	10	BDL	10	BDL	12
211	V	Chloroform	BDL	5	BDL	5	BDL	5	BDL	6
212	V	Bromodichloromethane	BDL	5	BDL	5	BDL	5	BDL	6
214	V	1,1-Dichloroethane	BDL	5	BDL	5	BDL	5	BDL	6
215	V	1,2-Dichloroethane	BDL	5	BDL	5	BDL	5	BDL	6
216	V	1,1-Dichloroethene	BDL	5	BDL	5	BDL	5	BDL	6
217	V	1,2-Dichloropropane	BDL	5	BDL	5	BDL	5	BDL	6
218	V	Cis-1,3-Dichloropropene	BDL	5	BDL	5	BDL	5	BDL	6
219	V	Ethylbenzene	BDL	5	BDL	5	BDL	5	BDL	6
220	V	Bromomethane	BDL	11	BDL	10	BDL	10	BDL	12
221	V	Chloromethane	BDL	11	BDL	10	BDL	10	BDL	12
222	V	Methylene chloride	BDL	5	BDL	5	BDL	5	BDL	6
223	V	1,1,2,2-Tetrachloroethane	BDL	5	BDL	5	BDL	5	BDL	6
224	V	Tetrachloroethene	BDL	5	BDL	5	BDL	5	BDL	6
225	V	Toluene	BDL	5	BDL	5	BDL	5	BDL	6
227	V	1,1,1-Trichloroethane	BDL	5	BDL	5	BDL	5	BDL	6
228	V	1,1,2-Trichloroethane	BDL	5	BDL	5	BDL	5	BDL	6
229	V	Trichloroethene	BDL	5	BDL	5	BDL	5	BDL	6
231	V	Vinyl chloride	BDL	11	BDL	10	BDL	10	BDL	12
250	V	Trans-1,3-Dichloropropene	BDL	5	BDL	5	BDL	5	BDL	6
251	V	Styrene	BDL	5	BDL	5	BDL	5	BDL	6
252	V	Acetone	BDL	11	28 B		19 B		BDL	12
253	V	2-Butanone	BDL	11	BDL	10	BDL	10	BDL	12
254	V	Carbon disulfide	BDL	5	BDL	5	BDL	5	BDL	6
255	V	2-Hexanone	BDL	11	BDL	10	BDL	10	BDL	12
256	V	4-Methyl-2-pentanone	BDL	11	BDL	10	BDL	10	BDL	12
257	V	Vinyl acetate	BDL	11	BDL	10	BDL	10	BDL	12
289	V	Xylenes (Total)	BDL	5	BDL	5	BDL	5	BDL	6
299	V	1,2-Dichloroethene(Total)	BDL	5	BDL	5	BDL	5	BDL	6

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	MW55-12	MW57-05	MW57-12	MW57-13
		SAMPLING DATE	03/19/91	03/19/91	03/19/91	03/19/91
		DEPTH (FT)	80	25	80	65 EPA
		MATRIX	SOIL	SOIL	SOIL	SOIL CHECK SAMPL
CMP	CL	COMPOUND UNITS	mg/kg	mg/kg	mg/kg	mg/kg
101	M	Antimony		0.2 B	0.13 B	0.11 B
102	M	Arsenic		1.3 B	0.92 B	0.33 B
103	M	Beryllium		1.5	8.4	0.43 B
104	M	Cadmium		1.1	3.2	BDL 0.72
105	M	Chromium		12.1	11.6	BDL 2
106	M	Copper		BDL 1.3	BDL 1.5	BDL 1.3
107	M	Lead		5.7	5.5	1.1
108	M	Mercury		BDL 0.11	0.14	BDL 0.11
109	M	Nickel		6.7 B	13.9	BDL 2.3
110	M	Selenium		BDL 0.13	BDL 0.16	BDL 0.13
111	M	Silver		BDL 1.5	BDL 1.8	BDL 1.5
112	M	Thallium		BDL 0.13	BDL 0.16	BDL 0.13
113	M	Zinc		12.6	31.8	7.4
114	M	Barium		21.7 B	62.8	BDL 6.8
115	M	Iron		9730	64400	2630
116	M	Manganese		71.9	258	11.3
117	M	Vanadium		23	26	2.8 B
118	M	Aluminum		6520	4200	512
120	M	Cobalt		2.2 B	3.9 B	BDL 1.7
121	M	Magnesium		479 B	631 B	48.2 B
129	M	Calcium		971 B	854 B	BDL 123
130	M	Sodium		208 B	BDL 205	BDL 169
131	M	Potassium		264 B	449 B	BDL 242
		UNITS	ug/kg	ug/kg	ug/kg	ug/kg
203	V	Benzene	BDL 5	BDL 5	BDL 7	BDL 5
205	V	Bromoform	BDL 5	BDL 5	BDL 7	BDL 5
206	V	Carbon tetrachloride	BDL 5	BDL 5	BDL 7	BDL 5
207	V	Chlorobenzene	BDL 5	BDL 5	BDL 7	BDL 5
208	V	Dibromochloromethane	BDL 5	BDL 5	BDL 7	BDL 5
209	V	Chloroethane	BDL 11	BDL 11	BDL 13	BDL 11
211	V	Chloroform	BDL 5	BDL 5	BDL 7	BDL 5
212	V	Bromodichloromethane	BDL 5	BDL 5	BDL 7	BDL 5
214	V	1,1-Dichloroethane	BDL 5	BDL 5	BDL 7	BDL 5
215	V	1,2-Dichloroethane	BDL 5	BDL 5	BDL 7	BDL 5
216	V	1,1-Dichloroethene	BDL 5	BDL 5	BDL 7	BDL 5
217	V	1,2-Dichloropropane	BDL 5	BDL 5	BDL 7	BDL 5
218	V	Cis-1,3-Dichloropropene	BDL 5	BDL 5	BDL 7	BDL 5
219	V	Ethylbenzene	BDL 5	BDL 5	BDL 7	BDL 5
220	V	Bromomethane	BDL 11	BDL 11	BDL 13	BDL 11
221	V	Chloromethane	BDL 11	BDL 11	BDL 13	BDL 11
222	V	Methylene chloride	BDL 5	BDL 5	BDL 7	BDL 5
223	V	1,1,2,2-Tetrachloroethane	BDL 5	BDL 5	BDL 7	BDL 5
224	V	Tetrachloroethene	BDL 5	BDL 5	BDL 7	BDL 5
225	V	Toluene	BDL 5	BDL 5	BDL 7	BDL 5
227	V	1,1,1-Trichloroethane	BDL 5	BDL 5	BDL 7	BDL 5
228	V	1,1,2-Trichloroethane	BDL 5	BDL 5	BDL 7	BDL 5
229	V	Trichloroethene	BDL 5	BDL 5	BDL 7	BDL 5
231	V	Vinyl chloride	BDL 11	BDL 11	BDL 13	BDL 11
250	V	Trans-1,3-Dichloropropene	BDL 5	BDL 5	BDL 7	BDL 5
251	V	Styrene	BDL 5	BDL 5	BDL 7	BDL 5
252	V	Acetone	18	BDL 11	35	BDL 11
253	V	2-Butanone	BDL 11	BDL 11	BDL 13	BDL 11
254	V	Carbon disulfide	BDL 5	BDL 5	BDL 7	BDL 5
255	V	2-Hexanone	BDL 11	BDL 11	BDL 13	BDL 11
256	V	4-Methyl-2-pentanone	BDL 11	BDL 11	BDL 13	BDL 11
257	V	Vinyl acetate	BDL 11	BDL 11	BDL 13	BDL 11
289	V	Xylenes(Total)	BDL 5	BDL 5	BDL 7	BDL 5
299	V	1,2-Dichloroethene(Total)	BDL 5	BDL 5	BDL 7	BDL 5

			SITE	COLLIERVILLE			COLLIERVILLE		
			SAMPLE ID	B51-9			B53-10		
			SAMPLING DATE	03/21/91			03/21/91		
			DEPTH (FT)	45			50		
			MATRIX	SOIL			SOIL		
CMP	CL	COMPOUND	UNITS	mg/kg			mg/kg		
101	M	Antimony		0.11	B		0.11	B	
102	M	Arsenic		7.1			6.6		
103	M	Beryllium		2.4			1.1		
104	M	Cadmium		0.88	B		0.86	B	
105	M	Chromium		5.7			11.8		
106	M	Copper		BDL		1.3	BDL		1.2
107	M	Lead		4.8			2.7		
108	M	Mercury		BDL		0.11	BDL		0.11
109	M	Nickel		5.9	B		4.1	B	
110	M	Selenium		BDL		0.13	BDL		0.13
111	M	Silver		BDL		1.5	BDL		1.5
112	M	Thallium		BDL		0.13	BDL		0.13
113	M	Zinc		15.6			11.4		
114	M	Barium		7.9	B		20.5	B	
115	M	Iron		17500			8010		
116	M	Manganese		96.1			237		
117	M	Vanadium		7.5	B		6.9	B	
118	M	Aluminum		1450			738		
120	M	Cobalt		4.2	B		3.7	B	
121	M	Magnesium		49.5	B		BDL		43.9
129	M	Calcium		BDL		124	BDL		122
130	M	Sodium		BDL		172	BDL		168
131	M	Potassium		BDL		246	BDL		240
			UNITS	ug/kg			ug/kg		
203	V	Benzene		BDL		5	BDL		5
205	V	Bromoform		BDL		5	BDL		5
206	V	Carbon tetrachloride		BDL		5	BDL		5
207	V	Chlorobenzene		BDL		5	BDL		5
208	V	Dibromochloromethane		BDL		5	BDL		5
209	V	Chloroethane		BDL		11	BDL		11
211	V	Chloroform		BDL		5	BDL		5
212	V	Bromodichloromethane		BDL		5	BDL		5
214	V	1,1-Dichloroethane		BDL		5	BDL		5
215	V	1,2-Dichloroethane		BDL		5	BDL		5
216	V	1,1-Dichloroethene		BDL		5	BDL		5
217	V	1,2-Dichloropropane		BDL		5	BDL		5
218	V	Cis-1,3-Dichloropropene		BDL		5	BDL		5
219	V	Ethylbenzene		BDL		5	BDL		5
220	V	Bromomethane		BDL		11	BDL		11
221	V	Chloromethane		BDL		11	BDL		11
222	V	Methylene chloride		25	B		BDL		5
223	V	1,1,2,2-Tetrachloroethane		BDL		5	BDL		5
224	V	Tetrachloroethene		BDL		5	BDL		5
225	V	Toluene		BDL		5	BDL		5
227	V	1,1,1-Trichloroethane		BDL		5	BDL		5
228	V	1,1,2-Trichloroethane		BDL		5	BDL		5
229	V	Trichloroethene		BDL		5	BDL		5
231	V	Vinyl chloride		BDL		11	BDL		11
250	V	Trans-1,3-Dichloropropene		BDL		5	BDL		5
251	V	Styrene		BDL		5	BDL		5
252	V	Acetone		10	BJ		23	B	
253	V	2-Butanone		BDL		11	BDL		11
254	V	Carbon disulfide		BDL		5	BDL		5
255	V	2-Hexanone		BDL		11	BDL		11
256	V	4-Methyl-2-pentanone		BDL		11	BDL		11
257	V	Vinyl acetate		BDL		11	BDL		11
289	V	Xylenes (Total)		BDL		5	BDL		5
299	V	1,2-Dichloroethene(Total)		BDL		5	BDL		5

		SITE	COLLIERVILLE		COLLIERVILLE		COLLIERVILLE		COLLIERVILLE	
		SAMPLE ID	MW61-1		MW61-2		MW61-3		MW61-4	
		SAMPLING DATE	05/30/91		05/30/91		05/30/91		05/30/91	
		DEPTH (FT)	5		10		15		20	
		MATRIX	SOIL		SOIL		SOIL		SOIL	
CMP	CL	COMPOUND UNITS	mg/kg		mg/kg		mg/kg		mg/kg	
101	M	Antimony	0.25	B	BDL	0.21	0.19	B	0.23	B
102	M	Arsenic	4.2		5.1		1.5	B	0.98	B
103	M	Beryllium	1.8		4.1		1.4		0.93	B
104	M	Cadmium	BDL	7.6	0.78	B	BDL	0.72	BDL	0.7
105	M	Chromium	14.7		28.7		15.4		32.2	
106	M	Copper	9.9		11.9		4.8	B	5.1	B
107	M	Lead	9.9		20.8		6.1		16.2	
108	M	Mercury	BDL	0.13	BDL	0.13	BDL	0.12	BDL	0.12
109	M	Nickel	11.7		22		8.9	B	5.1	B
110	M	Selenium	BDL	0.13	BDL	0.13	BDL	0.12	BDL	0.12
111	M	Silver	BDL	2.1	BDL	2.1	BDL	1.9	BDL	1.9
112	M	Thallium	BDL	0.18	BDL	0.18	BDL	0.17	BDL	0.16
113	M	Zinc	41.1		73.1		40.1		77.9	
114	M	Barium	101		197		56.2		25.6	B
115	M	Iron	10800		27600		8930		5380	
116	M	Manganese	716		473		136		22.8	
117	M	Vanadium	25.4		35.7		19.7		35	
118	M	Aluminum	12100		21400		10600		11800	
120	M	Cobalt	6.1	B	8.3	B	1.9	B	1.6	B
121	M	Magnesium	1350		2180		850	B	538	B
129	M	Calcium	789	B	1310		701	B	571	B
130	M	Sodium	BDL	99	120	B	130	B	143	B
131	M	Potassium	924	B	1000	B	343	B	301	B
		UNITS	ug/kg		ug/kg		ug/kg		ug/kg	
203	V	Benzene								
205	V	Bromoform								
206	V	Carbon tetrachloride								
207	V	Chlorobenzene								
208	V	Dibromochloromethane								
209	V	Chloroethane								
211	V	Chloroform								
212	V	Bromodichloromethane								
214	V	1,1-Dichloroethane								
215	V	1,2-Dichloroethane								
216	V	1,1-Dichloroethene								
217	V	1,2-Dichloropropane								
218	V	Cis-1,3-Dichloropropene								
219	V	Ethylbenzene								
220	V	Bromomethane								
221	V	Chloromethane								
222	V	Methylene chloride								
223	V	1,1,2,2-Tetrachloroethane								
224	V	Tetrachloroethene								
225	V	Toluene								
227	V	1,1,1-Trichloroethane								
228	V	1,1,2-Trichloroethane								
229	V	Trichloroethene								
231	V	Vinyl chloride								
250	V	Trans-1,3-Dichloropropene								
251	V	Styrene								
252	V	Acetone								
253	V	2-Butanone								
254	V	Carbon disulfide								
255	V	2-Hexanone								
256	V	4-Methyl-2-pentanone								
257	V	Vinyl acetate								
289	V	Xylenes (Total)								
299	V	1,2-Dichloroethene(Total)								

		SITE	COLLIERVILLE		COLLIERVILLE		COLLIERVILLE		COLLIERVILLE	
		SAMPLE ID	MW61-5		MW61-6		MW61-7		MW61-8	
		SAMPLING DATE	05/30/91		05/30/91		05/30/91		05/30/91	
		DEPTH (FT)	25		30		35		40	
		MATRIX	SOIL		SOIL		SOIL		SOIL	
CMP	CL	COMPOUND UNITS	mg/kg		mg/kg		mg/kg		mg/kg	
101	M	Antimony	BDL	0.19	BDL	0.19	0.3	B	BDL	0.18
102	M	Arsenic	4.6	B	10.7		1.5	B	3	
103	M	Beryllium	1.4		2.6		1.6		2	
104	M	Cadmium	BDL	0.71	BDL	0.7	BDL	0.69	BDL	0.67
105	M	Chromium	8.8		16.4		14		18.1	
106	M	Copper	1.4	B	1.9	B	2.3	B	2.5	B
107	M	Lead	1.6		4.2		2.8		2.6	
108	M	Mercury	BDL	0.12	BDL	0.12	BDL	0.11	BDL	0.11
109	M	Nickel	4.5	B	6.8	B	4.1	B	5.8	B
110	M	Selenium	BDL	0.12	BDL	0.12	BDL	0.11	BDL	0.11
111	M	Silver	2.1	B	2.3		BDL	1.9	BDL	1.8
112	M	Thallium	BDL	0.17	BDL	0.16	BDL	0.16	BDL	0.16
113	M	Zinc	12.9		45.6		24.1		21.3	
114	M	Barium	122		24.5	B	13.6	B	6.3	B
115	M	Iron	11300		18600		10800		14500	
116	M	Manganese	2150		498		157		94.6	
117	M	Vanadium	10.7	B	12.9		11	B	9.8	B
118	M	Aluminum	4480		2590		2850		2140	
120	M	Cobalt	4	B	9.3	B	2.3	B	3.4	B
121	M	Magnesium	125	B	BDL	119	BDL	117	BDL	114
129	M	Calcium	186	B	126	B	123	B	BDL	100
130	M	Sodium	BDL	92.9	BDL	91.1	BDL	89.7	BDL	87.2
131	M	Potassium	BDL	181	BDL	178	BDL	175	BDL	170
		UNITS	ug/kg		ug/kg		ug/kg		ug/kg	
203	V	Benzene								
205	V	Bromoform								
206	V	Carbon tetrachloride								
207	V	Chlorobenzene								
208	V	Dibromochloromethane								
209	V	Chloroethane								
211	V	Chloroform								
212	V	Bromodichloromethane								
214	V	1,1-Dichloroethane								
215	V	1,2-Dichloroethane								
216	V	1,1-Dichloroethene								
217	V	1,2-Dichloropropane								
218	V	Cis-1,3-Dichloropropene								
219	V	Ethylbenzene								
220	V	Bromomethane								
221	V	Chloromethane								
222	V	Methylene chloride								
223	V	1,1,2,2-Tetrachloroethane								
224	V	Tetrachloroethene								
225	V	Toluene								
227	V	1,1,1-Trichloroethane								
228	V	1,1,2-Trichloroethane								
229	V	Trichloroethene								
231	V	Vinyl chloride								
250	V	Trans-1,3-Dichloropropene								
251	V	Styrene								
252	V	Acetone								
253	V	2-Butanone								
254	V	Carbon disulfide								
255	V	2-Hexanone								
256	V	4-Methyl-2-pentanone								
257	V	Vinyl acetate								
289	V	Xylenes (Total)								
299	V	1,2-Dichloroethene(Total)								

		SITE	COLLIERVILLE		COLLIERVILLE		COLLIERVILLE		COLLIERVILLE	
		SAMPLE ID	MW61-9		MW61-10		MW61-11		MW61-12	
		SAMPLING DATE	05/30/91		05/30/91		05/30/91		05/30/91	
		DEPTH (FT)	45		50		55		60	
		MATRIX	SOIL		SOIL		SOIL		SOIL	
CMP	CL	COMPOUND UNITS	mg/kg		mg/kg		mg/kg		mg/kg	
101	M	Antimony	BDL	0.19	0.43	B	BDL	0.19	BDL	0.2
102	M	Arsenic	2.2	B	3.4		3.1		2.1	B
103	M	Beryllium	1.2		1.4		1.9		1.5	
104	M	Cadmium	BDL	0.7	BDL	0.68	BDL	0.73	BDL	0.74
105	M	Chromium	9.5		15.8		20.7		14.5	
106	M	Copper	1.9	B	23.3		2.4	B	1.5	B
107	M	Lead	2.5		3.7		3.6			
108	M	Mercury	BDL	0.12	BDL	0.11	BDL	0.12	BDL	0.12
109	M	Nickel	3.2	B	4.5	B	7.5	B	5.4	B
110	M	Selenium	BDL	0.12	0.11	B	BDL	0.12		
111	M	Silver	BDL	1.9	BDL	1.8	BDL	2	BDL	2
112	M	Thallium	BDL	0.16	BDL	0.16	BDL	0.17		
113	M	Zinc	27.4		58		29		40.8	
114	M	Barium	6.5	B	25.3	B	10.9	B	10.8	B
115	M	Iron	7450		9750		13200		9660	
116	M	Manganese	97.7		339		122		99.5	
117	M	Vanadium	7	B	9.9	B	13.9		9.3	B
118	M	Aluminum	1550		1040		3110		4550	
120	M	Cobalt	2.6	B	5	B	4.1	B	2.7	B
121	M	Magnesium	BDL	118	384	B	BDL	124	BDL	125
129	M	Calcium	BDL	104	657	B	114	B	121	B
130	M	Sodium	BDL	90.5	BDL	88	BDL	94.9	BDL	95.8
131	M	Potassium	BDL	176	BDL	172	BDL	185	BDL	187
		UNITS	ug/kg		ug/kg		ug/kg		ug/kg	
203	V	Benzene								
205	V	Bromoform								
206	V	Carbon tetrachloride								
207	V	Chlorobenzene								
208	V	Dibromochloromethane								
209	V	Chloroethane								
211	V	Chloroform								
212	V	Bromodichloromethane								
214	V	1,1-Dichloroethane								
215	V	1,2-Dichloroethane								
216	V	1,1-Dichloroethene								
217	V	1,2-Dichloropropane								
218	V	Cis-1,3-Dichloropropene								
219	V	Ethylbenzene								
220	V	Bromomethane								
221	V	Chloromethane								
222	V	Methylene chloride								
223	V	1,1,2,2-Tetrachloroethane								
224	V	Tetrachloroethene								
225	V	Toluene								
227	V	1,1,1-Trichloroethane								
228	V	1,1,2-Trichloroethane								
229	V	Trichloroethene								
231	V	Vinyl chloride								
250	V	Trans-1,3-Dichloropropene								
251	V	Styrene								
252	V	Acetone								
253	V	2-Butanone								
254	V	Carbon disulfide								
255	V	2-Hexanone								
256	V	4-Methyl-2-pentanone								
257	V	Vinyl acetate								
289	V	Xylenes (Total)								
299	V	1,2-Dichloroethene(Total)								

			SITE	COLLIERVILLE	
			SAMPLE ID	053091RB	
			SAMPLING DATE	05/30/91	
			DEPTH (FT)		
			MATRIX	SOIL	
CMP	CL	COMPOUND	UNITS	mg/kg	
101	M	Antimony		BDL	0.8
102	M	Arsenic		BDL	1
103	M	Beryllium		BDL	1.1
104	M	Cadmium		BDL	3
105	M	Chromium		BDL	9.5
106	M	Copper		BDL	4.5
107	M	Lead		1.5 B	
108	M	Mercury		BDL	0.2
109	M	Nickel		BDL	8.6
110	M	Selenium		BDL	0.5
111	M	Silver		BDL	8.1
112	M	Thallium		BDL	0.7
113	M	Zinc		5 B	
114	M	Barium		BDL	12.5
115	M	Iron		BDL	97.7
116	M	Manganese		BDL	1.5
117	M	Vanadium		BDL	4.2
118	M	Aluminum		BDL	195
120	M	Cobalt		BDL	6.4
121	M	Magnesium		BDL	509
129	M	Calcium		BDL	448
130	M	Sodium		BDL	390
131	M	Potassium		BDL	760
			UNITS	ug/kg	
203	V	Benzene		BDL	5
205	V	Bromoform		BDL	5
206	V	Carbon tetrachloride		BDL	5
207	V	Chlorobenzene		BDL	5
208	V	Dibromochloromethane		BDL	5
209	V	Chloroethane		BDL	10
211	V	Chloroform		BDL	5
212	V	Bromodichloromethane		BDL	5
214	V	1,1-Dichloroethane		BDL	5
215	V	1,2-Dichloroethane		BDL	5
216	V	1,1-Dichloroethene		BDL	5
217	V	1,2-Dichloropropane		BDL	5
218	V	Cis-1,3-Dichloropropene		BDL	5
219	V	Ethylbenzene		BDL	5
220	V	Bromomethane		BDL	10
221	V	Chloromethane		BDL	10
222	V	Methylene chloride		BDL	5
223	V	1,1,2,2-Tetrachloroethane		BDL	5
224	V	Tetrachloroethene		BDL	5
225	V	Toluene		BDL	5
227	V	1,1,1-Trichloroethane		BDL	5
228	V	1,1,2-Trichloroethane		BDL	5
229	V	Trichloroethene		BDL	5
231	V	Vinyl chloride		BDL	10
250	V	Trans-1,3-Dichloropropene		BDL	5
251	V	Styrene		BDL	5
252	V	Acetone		BDL	10
253	V	2-Butanone		BDL	10
254	V	Carbon disulfide		BDL	5
255	V	2-Hexanone		BDL	10
256	V	4-Methyl-2-pentanone		BDL	10
257	V	Vinyl acetate		BDL	10
289	V	Xylenes (Total)		BDL	5
299	V	1,2-Dichloroethene(Total)		BDL	5

APPENDIX H

PHASE II AND III COLLIERVILLE SITE

GROUNDWATER DATA

NOTES:

1) Monitoring wells 1A, 9, 11, and 15 did not produce sufficient amounts of water for sampling for the second or the third quarter groundwater sampling events.
2) Monitoring well 21 only produced enough water for the CLP volatile analysis.
3) Suffix identifiers "EC" and "WC" are for the City East well and the City West well respectfully.
4) The suffix identifier "F" for wells 3,5, and 23 (page H-9) denotes that these samples were filtered through a 0.45 micron filter in the laboratory for CLP metals analysis.
5) Monitoring wells 25, 27, 29, 31, 33, 35, 37, 39, 41, and 43 had not been installed at the time of the second quarter groundwater sampling event. These wells were installed in August, 1990. Of the new monitoring wells, 25,33, 41, and 43 did not produce sufficient amounts of water for sampling.
6) See Appendix A for explanations of the data qualifiers.
7) See Plate 1 for monitoring well locations.

COLLIERVILLE SITE: RESULTS OF SECOND QUARTER GROUNDWATER SAMPLING EVENT; MAY 16-18, 1990

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	05169001	0516901B	05169003	05169004
		LAB SAMPLE ID	05169001	0516901B	05169003	05169004
		SAMPLING DATE	05/16/90	05/16/90	05/16/90	05/16/90
		MATRIX	WATER	WATER	WATER	WATER
CMP	CL	COMPOUND	ug/l	ug/l	ug/l	ug/kg
101	M	Antimony	BDL 39	BDL 39	BDL 39	BDL 39
102	M	Arsenic	BDL 3	BDL 3	BDL 3	5.2 B
103	M	Beryllium	BDL 1	1 B	BDL 1	BDL 1
104	M	Cadmium	BDL 5	BDL 5	BDL 5	BDL 5
105	M	Chromium	BDL 7	BDL 7	BDL 7	BDL 7
106	M	Copper	BDL 5	BDL 5	10.6 B	10.2 B
107	M	Lead	5.3	2.4 B	134	41.4
108	M	Mercury	BDL 0.2	BDL 0.2	BDL 0.2	BDL 0.2
109	M	Nickel	BDL 34	BDL 34	BDL 34	BDL 34
110	M	Selenium	BDL 10	BDL 20	BDL 10	BDL 10
111	M	Silver	BDL 4	BDL 4	BDL 4	BDL 4
112	M	Thallium	BDL 3	BDL 3	BDL 3	BDL 3
113	M	Zinc	212	5120	30300	17500
114	M	Barium	24 B	134 B	71.7 B	75.1 B
115	M	Iron	16.9 B	757	5900	3500
116	M	Manganese	BDL 4	327	347	84
117	M	Vanadium	BDL 5	BDL 5	BDL 5	BDL 5
118	M	Aluminum	BDL 23	59.2 B	378	2520
120	M	Cobalt	BDL 7	BDL 7	BDL 7	BDL 7
121	M	Magnesium	1870 B	2020 B	5410	4980 B
129	M	Calcium	5670	8240	35600	62900
130	M	Sodium	18900	21700	22100	28900
131	M	Potassium	BDL 3970	BDL 3970	BDL 3970	BDL 3970
203	V	Benzene	BDL 13	BDL 50	BDL 250	BDL 5
205	V	Bromoform	BDL 13	BDL 50	BDL 250	BDL 5
206	V	Carbon tetrachloride	BDL 13	BDL 50	BDL 250	BDL 5
207	V	Chlorobenzene	BDL 13	BDL 50	BDL 250	BDL 5
208	V	Dibromochloromethane	BDL 13	BDL 50	BDL 250	BDL 5
209	V	Chloroethane	BDL 25	BDL 100	BDL 500	BDL 10
211	V	Chloroform	BDL 13	BDL 50	BDL 250	BDL 5
212	V	Bromodichloromethane	BDL 13	BDL 50	BDL 250	BDL 5
214	V	1,1-Dichloroethane	BDL 13	BDL 50	BDL 250	BDL 5
215	V	1,2-Dichloroethane	BDL 13	BDL 50	BDL 250	BDL 5
216	V	1,1-Dichloroethene	BDL 13	BDL 50	BDL 250	BDL 5
217	V	1,2-Dichloropropane	BDL 13	BDL 50	BDL 250	BDL 5
218	V	Cis-1,3-Dichloropropene	BDL 13	BDL 50	BDL 250	BDL 5
219	V	Ethylbenzene	BDL 13	BDL 50	BDL 250	BDL 5
220	V	Bromomethane	BDL 25	BDL 100	BDL 500	BDL 10
221	V	Chloromethane	BDL 25	BDL 100	BDL 500	BDL 10
222	V	Methylene chloride	BDL 13	300 B	51 B J	BDL 5
223	V	1,1,2,2-Tetrachloroethane	BDL 13	BDL 50	BDL 250	BDL 5
224	V	Tetrachloroethene	BDL 13	BDL 50	BDL 250	BDL 5
225	V	Toluene	BDL 13	BDL 50	BDL 250	BDL 5
227	V	1,1,1-Trichloroethane	BDL 13	BDL 50	BDL 250	BDL 5
228	V	1,1,2-Trichloroethane	BDL 13	BDL 50	BDL 250	BDL 5
229	V	Trichloroethene	480	1000	9000	9
231	V	Vinyl chloride	BDL 25	BDL 100	BDL 500	BDL 10
250	V	Trans-1,3-Dichloropropene	BDL 13	BDL 50	BDL 250	BDL 5
251	V	Styrene	BDL 13	BDL 50	BDL 250	BDL 5
252	V	Acetone	BDL 25	BDL 100	BDL 500	BDL 10
253	V	2-Butanone	BDL 25	BDL 100	BDL 500	BDL 10
254	V	Carbon disulfide	BDL 13	BDL 50	BDL 250	BDL 5
255	V	2-Hexanone	BDL 25	BDL 100	BDL 500	BDL 10
256	V	4-Methyl-2-pentanone	BDL 25	BDL 100	BDL 500	BDL 10
257	V	Vinyl acetate	BDL 25	BDL 100	BDL 500	BDL 10
289	V	Xylenes (Total)	BDL 13	BDL 50	BDL 250	BDL 5
299	V	1,2-Dichloroethene(Total)	50	170	4400	1 J

COLLIERVILLE SITE: RESULTS OF SECOND QUARTER GROUNDWATER SAMPLING EVENT; MAY 16–18, 1990

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	05179005	05179006	05189010	05189012
		LAB SAMPLE ID	05179005	05179006	05189010	05189012
		SAMPLING DATE	05/17/90	05/17/90	05/18/90	05/18/90
		MATRIX	WATER	WATER	WATER	WATER
CMP	CL	COMPOUND	ug/l	ug/l	ug/l	ug/l
101	M	Antimony	BDL 39	BDL 39	BDL 39	BDL 39
102	M	Arsenic	BDL 3	BDL 3	BDL 3	BDL 3
103	M	Beryllium	BDL 1	BDL 1	BDL 1	BDL 1
104	M	Cadmium	BDL 5	BDL 5	BDL 5	BDL 5
105	M	Chromium	BDL 7	BDL 7	BDL 7	8.1 B
106	M	Copper	22.3 B	BDL 5	BDL 5	BDL 5
107	M	Lead	16	BDL 2	5.3	BDL 2
108	M	Mercury	BDL 0.2	BDL 0.2	BDL 0.2	BDL 0.2
109	M	Nickel	BDL 34	BDL 34	BDL 34	BDL 34
110	M	Selenium	BDL 10	BDL 10	BDL 10	BDL 10
111	M	Silver	BDL 4	BDL 4	BDL 4	BDL 4
112	M	Thallium	BDL 3	BDL 3	BDL 3	BDL 3
113	M	Zinc	6220	2800	205	24.9
114	M	Barium	327	38.4 B	51.1 B	30.2 B
115	M	Iron	27800	196	48.9 B	80.2 B
116	M	Manganese	689	31.7	6.8 B	BDL 4
117	M	Vanadium	12.2 B	BDL 5	BDL 5	BDL 5
118	M	Aluminum	1590	48.2 B	35.4 B	29.1 B
120	M	Cobalt	BDL 7	BDL 7	BDL 7	BDL 7
121	M	Magnesium	7670	2580 B	3450 B	2690 B
129	M	Calcium	29000	7160	16000	7050
130	M	Sodium	109000	17600	31100	14600
131	M	Potassium	BDL 3970	BDL 3970	11100	BDL 3970
203	V	Benzene	BDL 130	BDL 5	BDL 5	BDL 5
205	V	Bromoform	BDL 130	BDL 5	BDL 5	BDL 5
206	V	Carbon tetrachloride	BDL 130	BDL 5	BDL 5	BDL 5
207	V	Chlorobenzene	BDL 130	BDL 5	BDL 5	BDL 5
208	V	Dibromochloromethane	BDL 130	BDL 5	BDL 5	BDL 5
209	V	Chloroethane	BDL 250	BDL 10	BDL 10	BDL 10
211	V	Chloroform	BDL 130	BDL 5	BDL 5	BDL 5
212	V	Bromodichloromethane	BDL 130	BDL 5	BDL 5	BDL 5
214	V	1,1-Dichloroethane	BDL 130	BDL 5	BDL 5	BDL 5
215	V	1,2-Dichloroethane	BDL 130	BDL 5	BDL 5	BDL 5
216	V	1,1-Dichloroethene	BDL 130	BDL 5	BDL 5	BDL 5
217	V	1,2-Dichloropropane	BDL 130	BDL 5	BDL 5	BDL 5
218	V	Cis-1,3-Dichloropropene	BDL 130	BDL 5	BDL 5	BDL 5
219	V	Ethylbenzene	BDL 130	BDL 5	BDL 5	BDL 5
220	V	Bromomethane	BDL 250	BDL 10	BDL 10	BDL 10
221	V	Chloromethane	BDL 250	BDL 10	BDL 10	BDL 10
222	V	Methylene chloride	40 B J	1 B J	7	1 J
223	V	1,1,2,2-Tetrachloroethane	BDL 130	BDL 5	BDL 5	BDL 5
224	V	Tetrachloroethene	BDL 130	BDL 5	BDL 5	BDL 5
225	V	Toluene	BDL 130	BDL 5	BDL 5	1 J
227	V	1,1,1-Trichloroethane	BDL 130	BDL 5	2 J	BDL 5
228	V	1,1,2-Trichloroethane	BDL 130	BDL 5	BDL 5	BDL 5
229	V	Trichloroethene	4900	3 J	1 J	BDL 5
231	V	Vinyl chloride	BDL 250	BDL 10	BDL 10	BDL 10
250	V	Trans-1,3-Dichloropropene	BDL 130	BDL 5	BDL 5	BDL 5
251	V	Styrene	BDL 130	BDL 5	BDL 5	BDL 5
252	V	Acetone	BDL 250	BDL 10	BDL 10	BDL 10
253	V	2-Butanone	BDL 250	BDL 10	BDL 10	BDL 10
254	V	Carbon disulfide	BDL 130	BDL 5	BDL 5	BDL 5
255	V	2-Hexanone	BDL 250	BDL 10	BDL 10	BDL 10
256	V	4-Methyl-2-pentanone	BDL 250	BDL 10	BDL 10	BDL 10
257	V	Vinyl acetate	BDL 250	BDL 10	BDL 10	BDL 10
289	V	Xylenes (Total)	BDL 130	BDL 5	BDL 5	BDL 5
299	V	1,2-Dichloroethene(Total)	2400	BDL 5	BDL 5	BDL 5

COLLIERVILLE SITE: RESULTS OF SECOND QUARTER GROUNDWATER SAMPLING EVENT; MAY 16–18, 1990

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	05179013	05179014	05189016	05179019
		LAB SAMPLE ID	05179013	05179014	05189016	05179019
		SAMPLING DATE	05/17/90	05/17/90	05/18/90	05/17/90
		MATRIX	WATER	WATER	WATER	WATER
CMP	CL	COMPOUND	ug/kg	ug/l	ug/l	ug/l
101	M	Antimony	BDL 39	BDL 39	BDL 39	BDL 39
102	M	Arsenic	BDL 3	BDL 3	BDL 3	BDL 3
103	M	Beryllium	BDL 1	BDL 1	BDL 1	BDL 1
104	M	Cadmium	BDL 5	BDL 5	BDL 5	BDL 5
105	M	Chromium	BDL 7	BDL 7	BDL 7	11.3
106	M	Copper	BDL 5	BDL 5	BDL 5	10 B
107	M	Lead	BDL 2	BDL 2	BDL 2	152
108	M	Mercury	BDL 0.2	BDL 0.2	BDL 0.2	BDL 0.2
109	M	Nickel	BDL 34	BDL 34	BDL 34	BDL 34
110	M	Selenium	BDL 10	BDL 10	BDL 10	BDL 10
111	M	Silver	BDL 4	BDL 4	BDL 4	BDL 4
112	M	Thallium	BDL 3	BDL 3	BDL 3	BDL 3
113	M	Zinc	30.8	286	3340	26100
114	M	Barium	58.3 B	30.1 B	27.9 B	201
115	M	Iron	17.2 B	646	96.7 B	12500
116	M	Manganese	BDL 4	4.3 B	46.8	738
117	M	Vanadium	BDL 5	BDL 5	BDL 5	11 B
118	M	Aluminum	29.1 B	BDL 23	75.8 B	1160
120	M	Cobalt	BDL 7	BDL 7	BDL 7	BDL 7
121	M	Magnesium	2570 B	2630 B	1470 B	4380 B
129	M	Calcium	6940	7410	5060	10900
130	M	Sodium	65500	23700	16400	41500
131	M	Potassium	BDL 3970	BDL 3970	BDL 3970	BDL 3970
203	V	Benzene	BDL 5	BDL 5	BDL 5	BDL 500
205	V	Bromoform	BDL 5	BDL 5	BDL 5	BDL 500
206	V	Carbon tetrachloride	BDL 5	BDL 5	BDL 5	BDL 500
207	V	Chlorobenzene	BDL 5	BDL 5	BDL 5	BDL 500
208	V	Dibromochloromethane	BDL 5	BDL 5	BDL 5	BDL 500
209	V	Chloroethane	BDL 10	BDL 10	BDL 10	BDL 1000
211	V	Chloroform	BDL 5	BDL 5	BDL 5	BDL 500
212	V	Bromodichloromethane	BDL 5	BDL 5	BDL 5	BDL 500
214	V	1,1-Dichloroethane	BDL 5	BDL 5	BDL 5	BDL 500
215	V	1,2-Dichloroethane	BDL 5	BDL 5	BDL 5	BDL 500
216	V	1,1-Dichloroethene	BDL 5	BDL 5	BDL 5	BDL 500
217	V	1,2-Dichloropropane	BDL 5	BDL 5	BDL 5	BDL 500
218	V	Cis-1,3-Dichloropropene	BDL 5	BDL 5	BDL 5	BDL 500
219	V	Ethylbenzene	BDL 5	BDL 5	BDL 5	BDL 500
220	V	Bromomethane	BDL 10	BDL 10	BDL 10	BDL 1000
221	V	Chloromethane	BDL 10	BDL 10	BDL 10	BDL 1000
222	V	Methylene chloride	BDL 5	BDL 5	BDL 5	130 B J
223	V	1,1,2,2-Tetrachloroethane	BDL 5	BDL 5	BDL 5	BDL 500
224	V	Tetrachloroethene	BDL 5	BDL 5	BDL 5	BDL 500
225	V	Toluene	BDL 5	BDL 5	BDL 5	BDL 500
227	V	1,1,1-Trichloroethane	BDL 5	BDL 5	BDL 5	BDL 500
228	V	1,1,2-Trichloroethane	BDL 5	BDL 5	BDL 5	BDL 500
229	V	Trichloroethene	160	BDL 5	BDL 5	14000
231	V	Vinyl chloride	BDL 10	BDL 10	BDL 10	BDL 1000
250	V	Trans-1,3-Dichloropropene	BDL 5	BDL 5	BDL 5	BDL 500
251	V	Styrene	BDL 5	BDL 5	BDL 5	BDL 500
252	V	Acetone	BDL 10	BDL 10	BDL 10	BDL 1000
253	V	2-Butanone	BDL 10	BDL 10	BDL 10	BDL 1000
254	V	Carbon disulfide	BDL 5	BDL 5	BDL 5	BDL 500
255	V	2-Hexanone	BDL 10	BDL 10	BDL 10	BDL 1000
256	V	4-Methyl-2-pentanone	BDL 10	BDL 10	BDL 10	BDL 1000
257	V	Vinyl acetate	BDL 10	BDL 10	BDL 10	BDL 1000
289	V	Xylenes (Total)	BDL 5	BDL 5	BDL 5	BDL 500
299	V	1,2-Dichloroethene(Total)	2 J	BDL 5	BDL 5	5400

COLLIERVILLE SITE: RESULTS OF SECOND QUARTER GROUNDWATER SAMPLING EVENT; MAY 16–18, 1990

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	05189021	05179023	051890EC	051890WC
		LAB SAMPLE ID	05189021	05179023	051890EC	051890WC
		SAMPLING DATE	05/18/90	05/17/90	05/18/90	05/18/90
		MATRIX	WATER	WATER	WATER	WATER
CMP	CL	COMPOUND	ug/l	ug/l	ug/l	ug/l
101	M	Antimony		BDL 39	BDL 39	BDL 39
102	M	Arsenic		BDL 3	BDL 3	BDL 3
103	M	Beryllium		BDL 1	BDL 1	BDL 1
104	M	Cadmium		BDL 5	BDL 5	BDL 5
105	M	Chromium		BDL 7	BDL 7	28
106	M	Copper		12 B	19.6 B	BDL 5
107	M	Lead		21.2	3.1	BDL 2
108	M	Mercury		BDL 0.2	BDL 0.2	BDL 0.2
109	M	Nickel		BDL 34	BDL 34	BDL 34
110	M	Selenium		BDL 10	BDL 10	BDL 10
111	M	Silver		BDL 4	BDL 4	BDL 4
112	M	Thallium		BDL 3	BDL 3	BDL 3
113	M	Zinc		9430	20.6	52.1
114	M	Barium		96.5 B	11 B	11.7 B
115	M	Iron		15100	660	257
116	M	Manganese		230	BDL 4	BDL 4
117	M	Vanadium		7.6 B	BDL 5	BDL 5
118	M	Aluminum		892	BDL 23	BDL 23
120	M	Cobalt		BDL 7	BDL 7	BDL 7
121	M	Magnesium		2920 B	972 B	958 B
129	M	Calcium		7980	2730 B	2640 B
130	M	Sodium		59100	6710	6580
131	M	Potassium		BDL 3970	BDL 3970	BDL 3970
203	V	Benzene	BDL 5	BDL 5	BDL 5	BDL 5
205	V	Bromoform	BDL 5	BDL 5	BDL 5	BDL 5
206	V	Carbon tetrachloride	BDL 5	BDL 5	BDL 5	BDL 5
207	V	Chlorobenzene	BDL 5	BDL 5	BDL 5	BDL 5
208	V	Dibromochloromethane	BDL 5	BDL 5	BDL 5	BDL 5
209	V	Chloroethane	BDL 10	BDL 10	BDL 10	BDL 10
211	V	Chloroform	BDL 5	BDL 5	BDL 5	BDL 5
212	V	Bromodichloromethane	BDL 5	BDL 5	BDL 5	BDL 5
214	V	1,1-Dichloroethane	BDL 5	BDL 5	BDL 5	BDL 5
215	V	1,2-Dichloroethane	BDL 5	BDL 5	BDL 5	BDL 5
216	V	1,1-Dichloroethene	BDL 5	BDL 5	BDL 5	BDL 5
217	V	1,2-Dichloropropane	BDL 5	BDL 5	BDL 5	BDL 5
218	V	Cis-1,3-Dichloropropene	BDL 5	BDL 5	BDL 5	BDL 5
219	V	Ethylbenzene	BDL 5	BDL 5	BDL 5	BDL 5
220	V	Bromomethane	BDL 10	BDL 10	BDL 10	BDL 10
221	V	Chloromethane	BDL 10	BDL 10	BDL 10	BDL 10
222	V	Methylene chloride	BDL 5	BDL 5	2 J	BDL 5
223	V	1,1,2,2-Tetrachloroethane	BDL 5	BDL 5	BDL 5	BDL 5
224	V	Tetrachloroethene	BDL 5	BDL 5	BDL 5	BDL 5
225	V	Toluene	3 J	4 J	1 J	4 J
227	V	1,1,1-Trichloroethane	BDL 5	BDL 5	BDL 5	BDL 5
228	V	1,1,2-Trichloroethane	BDL 5	BDL 5	BDL 5	BDL 5
229	V	Trichloroethene	680 E	79	19	18
231	V	Vinyl chloride	BDL 10	BDL 10	BDL 10	BDL 10
250	V	Trans-1,3-Dichloropropene	BDL 5	BDL 5	BDL 5	BDL 5
251	V	Styrene	BDL 5	BDL 5	BDL 5	BDL 5
252	V	Acetone	39	BDL 10	BDL 10	BDL 10
253	V	2-Butanone	BDL 10	BDL 10	BDL 10	BDL 10
254	V	Carbon disulfide	BDL 5	BDL 5	BDL 5	BDL 5
255	V	2-Hexanone	BDL 10	BDL 10	BDL 10	BDL 10
256	V	4-Methyl-2-pentanone	BDL 10	BDL 10	BDL 10	BDL 10
257	V	Vinyl acetate	BDL 10	BDL 10	BDL 10	BDL 10
289	V	Xylenes (Total)	BDL 5	BDL 5	BDL 5	BDL 5
299	V	1,2-Dichloroethene(Total)	380 E	1 J	BDL 5	BDL 5

COLLIERVILLE SITE: RESULTS OF THIRD QUARTER GROUNDWATER SAMPLING EVENT; AUGUST 15-24, 1990

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE I	08159001	0815901B	08159003	08159004
		LAB SAMPLE I	51769	51768	51770	51773
		SAMPLING DATE	08/15/90	08/15/90	08/15/90	08/15/90
		MATRIX	WATER	WATER	WATER	WATER
CMP	CL	COMPOUND	ug/l	ug/l	ug/l	ug/l
101	M	Antimony	BDL 42.9	BDL 42.9	BDL 42.9	BDL 42.9
102	M	Arsenic	BDL 0.5	BDL 0.5	0.9 B	1.6 B
103	M	Beryllium	BDL 1.4	BDL 1.4	BDL 1.4	BDL 1.4
104	M	Cadmium	BDL 3	BDL 3	BDL 3	BDL 3
105	M	Chromium	BDL 6.6	8 B	8 B	12
106	M	Copper	BDL 6.3	BDL 6.3	BDL 6.3	BDL 6.3
107	M	Lead	4.2	1.4 B	7.8	20
108	M	Mercury	BDL 0.2	BDL 0.2	BDL 0.2	BDL 0.2
109	M	Nickel	BDL 9.4	BDL 9.4	BDL 9.4	BDL 9.4
110	M	Selenium	BDL 1.2	BDL 1.2	BDL 1.2	BDL 1.2
111	M	Silver	BDL 9.6	BDL 9.6	BDL 9.6	BDL 9.6
112	M	Thallium	BDL 0.7	BDL 0.7	BDL 0.7	BDL 0.7
113	M	Zinc	43	5700	8430	9540
114	M	Barium	BDL 41.2	123 B	61 B	49 B
115	M	Iron	BDL 36.8	709	1730	543
116	M	Manganese	5 B	270	211	37
117	M	Vanadium	BDL 7.6	BDL 7.6	BDL 7.6	BDL 7.6
118	M	Aluminum	BDL 31.6	BDL 31.6	94 B	485
120	M	Cobalt	BDL 20.7	BDL 20.7	BDL 20.7	BDL 20.7
121	M	Magnesium	1720 B	1800 B	3570 B	3790 B
129	M	Calcium	5030	8560	28400	36000
130	M	Sodium	19700	22300	20700	29200
131	M	Potassium	BDL 1210	BDL 1210	BDL 1210	BDL 1210
203	V	Benzene	BDL 25	BDL 25	BDL 250	BDL 5
205	V	Bromoform	BDL 25	BDL 25	BDL 250	BDL 5
206	V	Carbon tetrachloride	BDL 25	BDL 25	BDL 250	BDL 5
207	V	Chlorobenzene	BDL 25	BDL 25	BDL 250	BDL 5
208	V	Dibromochloromethane	BDL 25	BDL 25	BDL 250	BDL 5
209	V	Chloroethane	BDL 50	BDL 50	BDL 500	BDL 10
211	V	Chloroform	BDL 25	BDL 25	BDL 250	BDL 5
212	V	Bromodichloromethane	BDL 25	BDL 25	BDL 250	BDL 5
214	V	1,1-Dichloroethane	BDL 25	BDL 25	BDL 250	BDL 5
215	V	1,2-Dichloroethane	BDL 25	BDL 25	BDL 250	BDL 5
216	V	1,1-Dichloroethene	BDL 25	BDL 25	5 J	BDL 5
217	V	1,2-Dichloropropane	BDL 25	BDL 25	BDL 250	BDL 5
218	V	Cis-1,3-Dichloropropene	BDL 25	BDL 25	BDL 250	BDL 5
219	V	Ethylbenzene	BDL 25	BDL 25	BDL 250	BDL 5
220	V	Bromomethane	BDL 50	BDL 50	BDL 500	BDL 10
221	V	Chloromethane	BDL 50	BDL 50	BDL 500	BDL 10
222	V	Methylene chloride	6 B J	6 B J	110 B J	0.5 B J
223	V	1,1,2,2-Tetrachloroethane	BDL 25	BDL 25	BDL 250	BDL 5
224	V	Tetrachloroethene	BDL 25	BDL 25	BDL 250	BDL 5
225	V	Toluene	BDL 25	BDL 25	BDL 250	BDL 5
227	V	1,1,1-Trichloroethane	BDL 25	BDL 25	BDL 250	BDL 5
228	V	1,1,2-Trichloroethane	BDL 25	BDL 25	BDL 250	BDL 5
229	V	Trichloroethene	600	820	5100	20
231	V	Vinyl chloride	BDL 50	BDL 50	BDL 500	BDL 10
250	V	Trans-1,3-Dichloropropene	BDL 25	BDL 25	BDL 250	BDL 5
251	V	Styrene	BDL 25	BDL 25	BDL 250	BDL 5
252	V	Acetone	37 J	BDL 50	BDL 500	BDL 10
253	V	2-Butanone	BDL 50	BDL 50	BDL 500	BDL 10
254	V	Carbon disulfide	BDL 25	15 J	12	4 J
255	V	2-Hexanone	BDL 50	BDL 50	BDL 500	BDL 10
256	V	4-Methyl-2-pentanone	BDL 50	BDL 50	BDL 500	BDL 10
257	V	Vinyl acetate	BDL 50	BDL 50	BDL 500	BDL 10
289	V	Xylenes (Total)	BDL 25	BDL 25	BDL 250	BDL 5
299	V	1,2-Dichloroethene(Total)	77	250	3900	5

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE I	08179005	08169006	08169010	08169012
		LAB SAMPLE I	51913.2	51772	51787	51785
		SAMPLING DATE	08/15/90	08/15/90	08/16/90	08/16/90
		MATRIX	WATER	WATER	WATER	WATER
CMP	CL	COMPOUND	ug/l	ug/l	ug/l	ug/l
101	M	Antimony	BDL 42.9	BDL 42.9	BDL 42.9	BDL 42.9
102	M	Arsenic	BDL 0.5	0.8 B	2.1 B	1.6 B
103	M	Beryllium	BDL 1.4	BDL 1.4	BDL 1.4	BDL 1.4
104	M	Cadmium	BDL 3	BDL 3	BDL 3	BDL 3
105	M	Chromium	BDL 6.6	BDL 6.6	BDL 6.6	BDL 6.6
106	M	Copper	BDL 6.3	BDL 6.3	BDL 6.3	BDL 6.3
107	M	Lead	22.5	5.2	2 B	1.8 B
108	M	Mercury	BDL 0.2	BDL 0.2	BDL 0.2	BDL 0.2
109	M	Nickel	BDL 9.4	BDL 9.4	BDL 9.4	BDL 9.4
110	M	Selenium	2 B	BDL 1.2	BDL 1.2	BDL 1.2
111	M	Silver	BDL 9.6	BDL 9.6	BDL 9.6	BDL 9.6
112	M	Thallium	BDL 0.7	BDL 0.7	BDL 0.7	BDL 0.7
113	M	Zinc	4890	3110	40	BDL 4.5
114	M	Barium	230	42 B	44 B	BDL 41.2
115	M	Iron	1300	164	BDL 36.8	104
116	M	Manganese	209	34	5 B	BDL 2.9
117	M	Vanadium	BDL 7.6	BDL 7.6	BDL 7.6	BDL 7.6
118	M	Aluminum	65 B	BDL 31.6	BDL 31.6	BDL 31.6
120	M	Cobalt	BDL 20.7	BDL 20.7	BDL 20.7	BDL 20.7
121	M	Magnesium	9190	2640 B	3540 B	2450 B
129	M	Calcium	39400	7900	15600	7310
130	M	Sodium	120000	19100	28500	15500
131	M	Potassium	1790 B	BDL 1210	5120	BDL 1210
203	V	Benzene	BDL 250	BDL 5	BDL 5	BDL 5
205	V	Bromoform	BDL 250	BDL 5	BDL 5	BDL 5
206	V	Carbon tetrachloride	BDL 250	BDL 5	BDL 5	BDL 5
207	V	Chlorobenzene	BDL 250	BDL 5	BDL 5	BDL 5
208	V	Dibromochloromethane	BDL 250	BDL 5	BDL 5	BDL 5
209	V	Chloroethane	BDL 500	BDL 10	BDL 10	BDL 10
211	V	Chloroform	BDL 250	BDL 5	BDL 5	BDL 5
212	V	Bromodichloromethane	BDL 250	BDL 5	BDL 5	BDL 5
214	V	1,1-Dichloroethane	BDL 250	BDL 5	BDL 5	BDL 5
215	V	1,2-Dichloroethane	BDL 250	BDL 5	BDL 5	BDL 5
216	V	1,1-Dichloroethene	BDL 250	BDL 5	BDL 5	BDL 5
217	V	1,2-Dichloropropane	BDL 250	BDL 5	BDL 5	BDL 5
218	V	Cis-1,3-Dichloropropene	BDL 250	BDL 5	BDL 5	BDL 5
219	V	Ethylbenzene	BDL 250	BDL 5	BDL 5	BDL 5
220	V	Bromomethane	BDL 500	BDL 10	BDL 10	BDL 10
221	V	Chloromethane	BDL 500	BDL 10	BDL 10	BDL 10
222	V	Methylene chloride	59 J	BDL 5	2 J	0.7 J
223	V	1,1,2,2-Tetrachloroethane	BDL 250	BDL 5	BDL 5	BDL 5
224	V	Tetrachloroethene	BDL 250	BDL 5	BDL 5	BDL 5
225	V	Toluene	BDL 250	BDL 5	BDL 5	BDL 5
227	V	1,1,1-Trichloroethane	BDL 250	BDL 5	BDL 5	BDL 5
228	V	1,1,2-Trichloroethane	BDL 250	BDL 5	BDL 5	BDL 5
229	V	Trichloroethene	6000	3 J	BDL 5	BDL 5
231	V	Vinyl chloride	BDL 500	BDL 10	BDL 10	BDL 10
250	V	Trans-1,3-Dichloropropene	BDL 250	BDL 5	BDL 5	BDL 5
251	V	Styrene	BDL 250	BDL 5	BDL 5	BDL 5
252	V	Acetone	75 B J	BDL 10	BDL 10	28
253	V	2-Butanone	BDL 500	BDL 10	BDL 10	BDL 10
254	V	Carbon disulfide	BDL 250	75	BDL 5	BDL 5
255	V	2-Hexanone	BDL 500	BDL 10	BDL 10	BDL 10
256	V	4-Methyl-2-pentanone	BDL 500	BDL 10	BDL 10	BDL 10
257	V	Vinyl acetate	BDL 500	BDL 10	BDL 10	BDL 10
289	V	Xylenes (Total)	BDL 250	BDL 5	BDL 5	BDL 5
299	V	1,2-Dichloroethene(Total)	610	BDL 5	BDL 5	BDL 5

COLLIERVILLE SITE: RESULTS OF THIRD QUARTER GROUNDWATER SAMPLING EVENT; AUGUST 15-24, 1990

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE I	08169013	08169014	08159016	08179019
		LAB SAMPLE I	51784	51786	51774	51917.5
		SAMPLING DATE	08/16/90	08/16/90	08/15/90	08/17/90
		MATRIX	WATER	WATER	WATER	WATER
CMP	CL	COMPOUND	ug/l	ug/l	ug/l	ug/l
101	M	Antimony	BDL 42.9	BDL 42.9	BDL 42.9	BDL 42.9
102	M	Arsenic	0.8 B	1.4 B	4.4 B	BDL 0.5
103	M	Beryllium	BDL 1.4	BDL 1.4	BDL 1.4	BDL 1.4
104	M	Cadmium	BDL 3	BDL 3	BDL 3	BDL 3
105	M	Chromium	BDL 6.6	9 B	BDL 6.6	19
106	M	Copper	BDL 6.3	BDL 6.3	BDL 6.3	7 B
107	M	Lead	1.5 B	2.9 B	4	38.8
108	M	Mercury	BDL 0.2	BDL 0.2	BDL 0.2	BDL 0.2
109	M	Nickel	BDL 9.4	BDL 9.4	BDL 9.4	BDL 9.4
110	M	Selenium	BDL 1.2	BDL 1.2	BDL 1.2	BDL 1.2
111	M	Silver	BDL 9.6	BDL 9.6	BDL 9.6	BDL 9.6
112	M	Thallium	BDL 0.7	BDL 0.7	BDL 0.7	BDL 0.7
113	M	Zinc	11 B	18 B	4760	19800
114	M	Barium	59 B	BDL 41.2	BDL 41.2	221
115	M	Iron	496	221	261	16700
116	M	Manganese	5 B	BDL 2.9	47	598
117	M	Vanadium	BDL 7.6	BDL 7.6	BDL 7.6	11 B
118	M	Aluminum	384	BDL 31.6	86 B	2470
120	M	Cobalt	BDL 20.7	BDL 20.7	BDL 20.7	BDL 20.7
121	M	Magnesium	2140 B	2400 B	1310 B	4810 B
129	M	Calcium	6750	6910	5210	9810
130	M	Sodium	65100	23000	15700	46100
131	M	Potassium	BDL 1210	BDL 1210	BDL 1210	1460 B
203	V	Benzene	BDL 5	BDL 5	BDL 5	BDL 750
205	V	Bromoform	BDL 5	BDL 5	BDL 5	BDL 750
206	V	Carbon tetrachloride	BDL 5	BDL 5	BDL 5	BDL 750
207	V	Chlorobenzene	BDL 5	BDL 5	BDL 5	BDL 750
208	V	Dibromochloromethane	BDL 5	BDL 5	BDL 5	BDL 750
209	V	Chloroethane	BDL 10	BDL 10	BDL 10	BDL 1500
211	V	Chloroform	BDL 5	BDL 5	BDL 5	BDL 750
212	V	Bromodichloromethane	BDL 5	BDL 5	BDL 5	BDL 750
214	V	1,1-Dichloroethane	BDL 5	BDL 5	BDL 5	BDL 750
215	V	1,2-Dichloroethane	BDL 5	BDL 5	BDL 5	BDL 750
216	V	1,1-Dichloroethene	BDL 5	BDL 5	BDL 5	BDL 750
217	V	1,2-Dichloropropane	BDL 5	BDL 5	BDL 5	BDL 750
218	V	Cis-1,3-Dichloropropene	BDL 5	BDL 5	BDL 5	BDL 750
219	V	Ethylbenzene	BDL 5	BDL 5	BDL 5	BDL 750
220	V	Bromomethane	BDL 10	BDL 10	BDL 10	BDL 1500
221	V	Chloromethane	BDL 10	BDL 10	BDL 10	BDL 1500
222	V	Methylene chloride	2 B J	BDL 5	BDL 5	420 J
223	V	1,1,2,2-Tetrachloroethane	BDL 5	BDL 5	BDL 5	BDL 750
224	V	Tetrachloroethene	BDL 5	BDL 5	BDL 5	BDL 750
225	V	Toluene	BDL 5	BDL 5	BDL 5	BDL 750
227	V	1,1,1-Trichloroethane	BDL 5	BDL 5	BDL 5	BDL 750
228	V	1,1,2-Trichloroethane	BDL 5	BDL 5	BDL 5	BDL 750
229	V	Trichloroethene	120	BDL 5	BDL 5	24000
231	V	Vinyl chloride	BDL 10	BDL 10	BDL 10	BDL 1500
250	V	Trans-1,3-Dichloropropene	BDL 5	BDL 5	BDL 5	BDL 750
251	V	Styrene	BDL 5	BDL 5	BDL 5	BDL 750
252	V	Acetone	BDL 10	BDL 10	35	640 J
253	V	2-Butanone	BDL 10	BDL 10	BDL 10	BDL 1500
254	V	Carbon disulfide	BDL 5	9	BDL 5	BDL 750
255	V	2-Hexanone	BDL 10	BDL 10	BDL 10	BDL 1500
256	V	4-Methyl-2-pentanone	BDL 10	BDL 10	BDL 10	BDL 1500
257	V	Vinyl acetate	BDL 10	BDL 10	BDL 10	BDL 1500
289	V	Xylenes (Total)	BDL 5	BDL 5	BDL 5	BDL 750
299	V	1,2-Dichloroethene(Total)	3 J	BDL 5	BDL 5	2100

		SITE	COLLIERVILLE		COLLIERVILLE		COLLIERVILLE		COLLIERVILLE	
		SAMPLE I	08179021		08179023		08209027		08249029	
		LAB SAMPLE I	51916.7		51918.3		51959.0		08249029	
		SAMPLING DATE	08/17/90		08/17/90		08/09/90		08/15/90	
		MATRIX	WATER		WATER		WATER		WATER	
CMP	CL	COMPOUND	ug/l		ug/l		ug/l		ug/l	
101	M	Antimony	BDL	42.9	BDL	42.9	BDL	42.9	BDL	42.9
102	M	Arsenic	BDL	0.5	BDL	0.5	3 B		1.4 B	
103	M	Beryllium	6		BDL	1.4	BDL	1.4	BDL	1.4
104	M	Cadmium	6		BDL	3	BDL	3	BDL	3
105	M	Chromium	45		10		49		18	
106	M	Copper	13 B		BDL	6.3	55		BDL	6.3
107	M	Lead	118		216		44		9.4	
108	M	Mercury	0.22		BDL	0.2	BDL	0.2	BDL	0.2
109	M	Nickel	22 B		BDL	9.4	62		43	
110	M	Selenium	BDL	1.2	BDL	1.2	BDL	1.2	BDL	1.2
111	M	Silver	BDL	9.6	BDL	9.6	BDL	9.6	BDL	9.6
112	M	Thallium	BDL	0.7	BDL	0.7	BDL	0.7	BDL	0.6
113	M	Zinc	9440		14400		4270		5220	
114	M	Barium	366		99 B		86 B		42 B	
115	M	Iron	89700		11600		19600		1720	
116	M	Manganese	1020		243		331		506	
117	M	Vanadium	56		BDL	7.6	18 B		BDL	7.6
118	M	Aluminum	5230		615		4380		513	
120	M	Cobalt	BDL	20.7	BDL	20.7	BDL	20.7	BDL	20.7
121	M	Magnesium	9340		2740 B		5350		2100 B	
129	M	Calcium	35600		8090		19500		10500	
130	M	Sodium	43800		61800		64500		16300	
131	M	Potassium	2320 B		1050		2760 B		3350 B	
203	V	Benzene	BDL	250	BDL	5	BDL	5	BDL	5
205	V	Bromoform	BDL	250	BDL	5	BDL	5	BDL	5
206	V	Carbon tetrachloride	BDL	250	BDL	5	BDL	5	BDL	5
207	V	Chlorobenzene	BDL	250	BDL	5	BDL	5	BDL	5
208	V	Dibromochloromethane	BDL	250	BDL	5	BDL	5	BDL	5
209	V	Chloroethane	BDL	500	BDL	10	BDL	10	BDL	10
211	V	Chloroform	BDL	250	BDL	5	BDL	5	BDL	5
212	V	Bromodichloromethane	BDL	250	BDL	5	BDL	5	BDL	5
214	V	1,1-Dichloroethane	BDL	250	BDL	5	BDL	5	BDL	5
215	V	1,2-Dichloroethane	BDL	250	BDL	5	BDL	5	BDL	5
216	V	1,1-Dichloroethene	BDL	250	BDL	5	BDL	5	BDL	5
217	V	1,2-Dichloropropane	BDL	250	BDL	5	BDL	5	BDL	5
218	V	Cis-1,3-Dichloropropene	BDL	250	BDL	5	BDL	5	BDL	5
219	V	Ethylbenzene	BDL	250	BDL	5	BDL	5	BDL	5
220	V	Bromomethane	BDL	500	BDL	10	BDL	10	BDL	10
221	V	Chloromethane	BDL	500	BDL	10	BDL	10	BDL	10
222	V	Methylene chloride	56 J		2 J		BDL	5	BDL	5
223	V	1,1,2,2-Tetrachloroethane	BDL	250	BDL	5	BDL	5	BDL	5
224	V	Tetrachloroethene	BDL	250	BDL	5	BDL	5	BDL	5
225	V	Toluene	BDL	250	BDL	5	BDL	5	BDL	5
227	V	1,1,1-Trichloroethane	BDL	250	BDL	5	BDL	5	BDL	5
228	V	1,1,2-Trichloroethane	BDL	250	BDL	5	BDL	5	BDL	5
229	V	Trichloroethene	5400		89		BDL	5	BDL	5
231	V	Vinyl chloride	BDL	500	BDL	10	BDL	10	BDL	10
250	V	Trans-1,3-Dichloropropene	BDL	250	BDL	5	BDL	5	BDL	5
251	V	Styrene	BDL	250	BLD	5	BDL	5	BDL	5
252	V	Acetone	240 B J		12		40		BDL	10
253	V	2-Butanone	BDL	500	BDL	10	BDL	10	BDL	10
254	V	Carbon disulfide	BDL	250	17		BDL	5	BDL	5
255	V	2-Hexanone	BDL	500	BDL	10	BDL	10	BDL	10
256	V	4-Methyl-2-pentanone	BDL	500	BDL	10	BDL	10	BDL	10
257	V	Vinyl acetate	BDL	500	BDL	10	BDL	10	BDL	10
289	V	Xylenes (Total)	BDL	250	BDL	5	BDL	5	BDL	5
299	V	1,2-Dichloroethene(Total)	410		4 J		BDL	5	BDL	5

COLLIERVILLE SITE: RESULTS OF THIRD QUARTER GROUNDWATER SAMPLING EVENT; AUGUST 15-24, 1990

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE I	08219031	08179035	08219037	08209039
		LAB SAMPLE I	08219031	51915.9	08219037	51960.4
		SAMPLING DATE	08/15/90	08/15/90	08/15/90	08/15/90
		MATRIX	WATER	WATER	WATER	WATER
CMP	CL	COMPOUND	ug/l	ug/l	ug/l	ug/l
101	M	Antimony	49 B	BDL 42.9	BDL 42.9	BDL 42.9
102	M	Arsenic	BDL 0.7	BDL 0.5	BDL 0.5	BDL 0.5
103	M	Beryllium	2 B	BDL 1.4	BDL 1.4	BDL 1.4
104	M	Cadmium	BDL 3	BDL 3	BDL 3	BDL 3
105	M	Chromium	42	15	26	11
106	M	Copper	BDL 6.3	40	11 B	14 B
107	M	Lead	21.5	8.7	5.4	5.9
108	M	Mercury	BDL 0.2	BDL 0.2	BDL 0.2	BDL 0.2
109	M	Nickel	21 B	124	26 B	124
110	M	Selenium	BDL 1.2	BDL 1.2	BDL 1.2	BDL 1.2
111	M	Silver	BDL 9.6	BDL 9.6	BDL 9.6	BDL 9.6
112	M	Thallium	BDL 0.6	BDL 0.7	BDL 0.6	BDL 0.7
113	M	Zinc	1020	776	117	390
114	M	Barium	118 B	BDL 41.2	104 B	173 B
115	M	Iron	28900	4800	9050	22300
116	M	Manganese	2190	194	192	527
117	M	Vanadium	12 B	BDL 7.6	BDL 7.6	8 B
118	M	Aluminum	1710	1050	1830	1410
120	M	Cobalt	BDL 20.7	BDL 20.7	BDL 20.7	BDL 20.7
121	M	Magnesium	1470 B	1410 B	6750	8180
129	M	Calcium	3370 B	6480	17400	22300
130	M	Sodium	16500	17500	50400	48700
131	M	Potassium	BDL 1210	3670 B	19700	15000
203	V	Benzene	BDL 5	BDL 5	BDL 12	BDL 120
205	V	Bromoform	BDL 5	BDL 5	BDL 12	BDL 120
206	V	Carbon tetrachloride	BDL 5	BDL 5	BDL 12	BDL 120
207	V	Chlorobenzene	BDL 5	BDL 5	BDL 12	BDL 120
208	V	Dibromochloromethane	BDL 5	BDL 5	BDL 12	BDL 120
209	V	Chloroethane	BDL 10	BDL 10	BDL 25	BDL 250
211	V	Chloroform	BDL 5	BDL 5	BDL 12	BDL 120
212	V	Bromodichloromethane	BDL 5	BDL 5	BDL 12	BDL 120
214	V	1,1-Dichloroethane	BDL 5	BDL 5	BDL 12	BDL 120
215	V	1,2-Dichloroethane	BDL 5	BDL 5	BDL 12	BDL 120
216	V	1,1-Dichloroethene	BDL 5	BDL 5	BDL 12	BDL 120
217	V	1,2-Dichloropropane	BDL 5	BDL 5	BDL 12	BDL 120
218	V	Cis-1,3-Dichloropropene	BDL 5	BDL 5	BDL 12	BDL 120
219	V	Ethylbenzene	BDL 5	BDL 5	BDL 12	BDL 120
220	V	Bromomethane	BDL 10	BDL 10	BDL 25	BDL 250
221	V	Chloromethane	BDL 10	BDL 10	BDL 25	BDL 250
222	V	Methylene chloride	BDL 5	0.9 BJ	8 J	20 B J
223	V	1,1,2,2-Tetrachloroethane	BDL 5	BDL 5	BDL 12	BDL 120
224	V	Tetrachloroethene	BDL 5	BDL 5	BDL 12	BDL 120
225	V	Toluene	BDL 5	BDL 5	BDL 12	BDL 120
227	V	1,1,1-Trichloroethane	BDL 5	BDL 5	BDL 12	BDL 120
228	V	1,1,2-Trichloroethane	BDL 5	BDL 5	BDL 12	BDL 120
229	V	Trichloroethene	170	5 BJ	360	3500
231	V	Vinyl chloride	BDL 10	BDL 10	BDL 25	BDL 250
250	V	Trans-1,3-Dichloropropene	BDL 5	BDL 5	BDL 12	BDL 120
251	V	Styrene	BDL 5	BDL 5	BDL 12	BDL 120
252	V	Acetone	6 B J	20	14 J	860
253	V	2-Butanone	BDL 10	BDL 10	BDL 25	BDL 250
254	V	Carbon disulfide	BDL 5	BDL 5	BDL 12	BDL 120
255	V	2-Hexanone	BDL 10	BDL 10	BDL 25	BDL 250
256	V	4-Methyl-2-pentanone	BDL 10	BDL 10	BDL 25	BDL 250
257	V	Vinyl acetate	BDL 10	BDL 10	BDL 25	BDL 250
289	V	Xylenes (Total)	BDL 5	BDL 5	BDL 12	BDL 120
299	V	1,2-Dichloroethene(Total)	36	BDL 5	BDL 12	BDL 120

COLLIERVILLE SITE: RESULTS OF FOURTH QUARTER GROUNDWATER SAMPLING EVENT; NOVEMBER 13–16, 1990

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	11139001	11139001 D	1113901B	1113901B D
		LAB SAMPLE ID	11139001	11139001 D	1113901B	1113901B D
		SAMPLING DATE	11/13/90	11/13/90	11/13/90	11/14/90
		MATRIX	WATER	WATER	WATER	WATER
CMP	CL	COMPOUND	ug/l	ug/l	ug/l	ug/l
101	M	Antimony		55 B	BDL 42.9	BDL 42.9
102	M	Arsenic		1.1 B	BDL 0.5	0.5 B
103	M	Beryllium		BDL 1.4	BDL 1.4	BDL 1.4
104	M	Cadmium		BDL 3	BDL 3	BDL 3
105	M	Chromium		BDL 6.6	BDL 6.6	BDL 6.6
106	M	Copper		BDL 6.3	BDL 6.3	BDL 6.3
107	M	Lead		1.6 B	1.3 B	0.4 B
108	M	Mercury		BDL 0.2	BDL 0.2	BDL 0.2
109	M	Nickel		BDL 9.4	BDL 9.4	BDL 9.4
110	M	Selenium		BDL 1.2	BDL 1.2	BDL 1.2
111	M	Silver		BDL 9.6	BDL 9.6	BDL 9.6
112	M	Thallium		BDL 0.7	BDL 0.7	BDL 0.7
113	M	Zinc		24	6730	5200
114	M	Barium		BDL 41.2	106 B	119 B
115	M	Iron		94 B	745	554
116	M	Manganese		4 B	279	272
117	M	Vanadium		BDL 7.6	BDL 7.6	BDL 7.6
118	M	Aluminum		BDL 31.6	BDL 31.6	BDL 31.6
120	M	Cobalt		BDL 12.1	BDL 12.1	BDL 12.1
121	M	Magnesium		2090 B	2120 B	2000 B
129	M	Calcium		5220	8160	7830
130	M	Sodium		22000	17500	20000
131	M	Potassium		BDL 1210	BDL 1210	BDL 1210
203	V	Benzene	BDL 25		BDL 25	
205	V	Bromoform	BDL 25		BDL 25	
206	V	Carbon tetrachloride	BDL 25		BDL 25	
207	V	Chlorobenzene	BDL 25		BDL 25	
208	V	Dibromochloromethane	BDL 25		BDL 25	
209	V	Chloroethane	BDL 50		BDL 50	
211	V	Chloroform	BDL 25		BDL 25	
212	V	Bromodichloromethane	BDL 25		BDL 25	
214	V	1,1-Dichloroethane	BDL 25		BDL 25	
215	V	1,2-Dichloroethane	BDL 25		BDL 25	
216	V	1,1-Dichloroethene	BDL 25		BDL 25	
217	V	1,2-Dichloropropane	BDL 25		BDL 25	
218	V	Cis-1,3-Dichloropropene	BDL 25		BDL 25	
219	V	Ethylbenzene	BDL 25		BDL 25	
220	V	Bromomethane	BDL 50		BDL 50	
221	V	Chloromethane	BDL 50		BDL 50	
222	V	Methylene chloride	3 J		4 J	
223	V	1,1,2,2-Tetrachloroethane	BDL 25		BDL 25	
224	V	Tetrachloroethene	BDL 25		BDL 25	
225	V	Toluene	BDL 25		BDL 25	
227	V	1,1,1-Trichloroethane	BDL 25		BDL 25	
228	V	1,1,2-Trichloroethane	BDL 25		BDL 25	
229	V	Trichloroethene	570		710	
231	V	Vinyl chloride	BDL 50		BDL 50	
250	V	Trans-1,3-Dichloropropene	BDL 25		BDL 25	
251	V	Styrene	BDL 25		BDL 25	
252	V	Acetone	30 BJ		13 BJ	
253	V	2-Butanone	BDL 50		BDL 50	
254	V	Carbon disulfide	BDL 25		BDL 25	
255	V	2-Hexanone	BDL 50		BDL 50	
256	V	4-Methyl-2-pentanone	BDL 50		BDL 50	
257	V	Vinyl acetate	BDL 50		BDL 50	
289	V	Xylenes (Total)	BDL 25		BDL 25	
299	V	1,2-Dichloroethene(Total)	88		270	

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	11149003	11149003 D	11139004	11139004 D
		LAB SAMPLE ID	11149003	11159003 D	11139004	11139004 D
		SAMPLING DATE	11/14/90	11/14/90	11/13/90	11/13/90
		MATRIX	WATER	WATER	WATER	WATER
CMP	CL	COMPOUND	ug/l	ug/l	ug/kg	ug/kg
101	M	Antimony	BDL 42.9	43 B	BDL 42.9	BDL 42.9
102	M	Arsenic	0.7 B	BDL 0.5	BDL 0.5	BDL 0.5
103	M	Beryllium	BDL 1.4	BDL 1.4	BDL 1.4	BDL 1.4
104	M	Cadmium	BDL 3	3 B	BDL 3	BDL 3
105	M	Chromium	BDL 6.6	BDL 6.6	BDL 6.6	BDL 6.6
106	M	Copper	7 B	BDL 6.3	BDL 6.3	BDL 6.3
107	M	Lead	37.7	1.7 B	25.9	0.6 B
108	M	Mercury	BDL 0.2	BDL 0.2	BDL 0.2	BDL 0.2
109	M	Nickel	BDL 9.4	BDL 9.4	BDL 9.4	BDL 9.4
110	M	Selenium	BDL 1.2	BDL 1.2	BDL 1.2	BDL 1.2
111	M	Silver	BDL 9.6	BDL 9.6	BDL 9.6	BDL 9.6
112	M	Thallium	BDL 0.7	BDL 0.7	BDL 0.7	BDL 0.7
113	M	Zinc	26800	24000	16600	4820
114	M	Barium	78 B	70 B	65 B	BDL 41.2
115	M	Iron	2170	79 B	4600	65 B
116	M	Manganese	1160	1030	78	23
117	M	Vanadium	BDL 7.6	BDL 7.6	BDL 7.6	BDL 7.6
118	M	Aluminum	305	BDL 31.6	2540	BDL 31.6
120	M	Cobalt	BDL 12.1	BDL 12.1	BDL 12.1	BDL 12.1
121	M	Magnesium	4380 B	4310 B	5370	3470 B
129	M	Calcium	31600	27100	49300	26700
130	M	Sodium	22900	19800	34400	26000
131	M	Potassium	BDL 1210	BDL 1210	1250 B	BDL 1210
203	V	Benzene	BDL 250		BDL 5	
205	V	Bromoform	BDL 250		BDL 5	
206	V	Carbon tetrachloride	BDL 250		BDL 5	
207	V	Chlorobenzene	BDL 250		BDL 5	
208	V	Dibromochloromethane	BDL 250		BDL 5	
209	V	Chloroethane	BDL 500		BDL 10	
211	V	Chloroform	BDL 250		BDL 5	
212	V	Bromodichloromethane	BDL 250		BDL 5	
214	V	1,1-Dichloroethane	BDL 250		BDL 5	
215	V	1,2-Dichloroethane	BDL 250		BDL 5	
216	V	1,1-Dichloroethene	BDL 250		BDL 5	
217	V	1,2-Dichloropropane	BDL 250		BDL 5	
218	V	Cis-1,3-Dichloropropene	BDL 250		BDL 5	
219	V	Ethylbenzene	BDL 250		BDL 5	
220	V	Bromomethane	BDL 500		BDL 10	
221	V	Chloromethane	BDL 500		BDL 10	
222	V	Methylene chloride	240 J		BDL 5	
223	V	1,1,2,2-Tetrachloroethane	BDL 250		BDL 5	
224	V	Tetrachloroethene	BDL 250		BDL 5	
225	V	Toluene	BDL 250		BDL 5	
227	V	1,1,1-Trichloroethane	BDL 250		BDL 5	
228	V	1,1,2-Trichloroethane	BDL 250		BDL 5	
229	V	Trichloroethene	5900		23	
231	V	Vinyl chloride	BDL 500		BDL 10	
250	V	Trans-1,3-Dichloropropene	BDL 250		BDL 5	
251	V	Styrene	BDL 250		BDL 5	
252	V	Acetone	BDL 500		6 J	
253	V	2-Butanone	BDL 500		BDL 10	
254	V	Carbon disulfide	BDL 250		BDL 5	
255	V	2-Hexanone	BDL 500		BDL 10	
256	V	4-Methyl-2-pentanone	BDL 500		BDL 10	
257	V	Vinyl acetate	BDL 500		BDL 10	
289	V	Xylenes (Total)	BDL 250		BDL 5	
299	V	1,2-Dichloroethene(Total)	BDL 250		BDL 5	

COLLIERVILLE SITE: RESULTS OF FOURTH QUARTER GROUNDWATER SAMPLING EVENT; NOVEMBER 13–16, 1990

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	11159005	11159005 D	11149006	11149006 D
		LAB SAMPLE ID	11159005	11159005 D	11149006	11159006 D
		SAMPLING DATE	11/16/90	11/16/90	11/14/90	11/15/90
		MATRIX	WATER	WATER	WATER	WATER
CMP	CL	COMPOUND	ug/l	ug/l	ug/l	ug/l
101	M	Antimony	BDL 42.9	47 B	74	63
102	M	Arsenic	BDL 0.5	BDL 0.5	BDL 0.7	BDL 0.5
103	M	Beryllium	2 B	BDL 1.4	BDL 1.4	BDL 1.4
104	M	Cadmium	BDL 3	BDL 3	BDL 3	BDL 3
105	M	Chromium	9 B	BDL 6.6	7 B	BDL 6.6
106	M	Copper	BDL 6.3	BDL 6.3	BDL 6.3	BDL 6.3
107	M	Lead	15.6	0.6 B	3.7	0.7 B
108	M	Mercury	BDL 0.2	BDL 0.2	BDL 0.2	BDL 0.2
109	M	Nickel	BDL 9.4	BDL 9.4	BDL 9.4	BDL 9.4
110	M	Selenium	BDL 1.2	BDL 1.2	BDL 1.2	BDL 1.2
111	M	Silver	BDL 9.6	BDL 9.6	BDL 9.6	BDL 9.6
112	M	Thallium	BDL 0.6	BDL 0.6	BDL 0.7	BDL 0.7
113	M	Zinc	3310	2520	3500	2510
114	M	Barium	132 B	229	44 B	BDL 41.2
115	M	Iron	16100	BDL 59.4	250	118
116	M	Manganese	84	273	30	22
117	M	Vanadium	9 B	BDL 7.6	BDL 7.6	BDL 7.6
118	M	Aluminum	1920	BDL 31.6	82 B	BDL 31.6
120	M	Cobalt	BDL 12.1	BDL 12.1	BDL 12.1	BDL 12.1
121	M	Magnesium	7170	8710	2750 B	2260 B
129	M	Calcium	31100	35500	8370	6150
130	M	Sodium	126000	159000	21500	15900
131	M	Potassium	2530 B	3260 B	BDL 1210	BDL 1210
203	V	Benzene	BDL 250		BDL 5	
205	V	Bromoform	BDL 250		BDL 5	
206	V	Carbon tetrachloride	BDL 250		BDL 5	
207	V	Chlorobenzene	BDL 250		BDL 5	
208	V	Dibromochloromethane	BDL 250		BDL 5	
209	V	Chloroethane	BDL 500		BDL 10	
211	V	Chloroform	BDL 250		BDL 5	
212	V	Bromodichloromethane	BDL 250		BDL 5	
214	V	1,1-Dichloroethane	BDL 250		BDL 5	
215	V	1,2-Dichloroethane	BDL 250		BDL 5	
216	V	1,1-Dichloroethene	BDL 250		BDL 5	
217	V	1,2-Dichloropropane	BDL 250		BDL 5	
218	V	Cis-1,3-Dichloropropene	BDL 250		BDL 5	
219	V	Ethylbenzene	BDL 250		BDL 5	
220	V	Bromomethane	BDL 500		BDL 10	
221	V	Chloromethane	BDL 500		BDL 10	
222	V	Methylene chloride	230 B J		BDL 5	
223	V	1,1,2,2-Tetrachloroethane	BDL 250		BDL 5	
224	V	Tetrachloroethene	BDL 250		BDL 5	
225	V	Toluene	BDL 250		BDL 5	
227	V	1,1,1-Trichloroethane	BDL 250		BDL 5	
228	V	1,1,2-Trichloroethane	BDL 250		BDL 5	
229	V	Trichloroethene	5800		BDL 5	
231	V	Vinyl chloride	BDL 500		BDL 10	
250	V	Trans-1,3-Dichloropropene	BDL 250		BDL 5	
251	V	Styrene	BDL 250		BDL 5	
252	V	Acetone	360 BJ		BDL 10	
253	V	2-Butanone	BDL 500		BDL 10	
254	V	Carbon disulfide	BDL 250		BDL 5	
255	V	2-Hexanone	BDL 500		BDL 10	
256	V	4-Methyl-2-pentanone	BDL 500		BDL 10	
257	V	Vinyl acetate	BDL 500		BDL 10	
289	V	Xylenes (Total)	BDL 250		BDL 5	
299	V	1,2-Dichloroethene(Total)	640		BDL 5	

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	11149010	11149010 D	11149012	11149012 D
		LAB SAMPLE ID	11149010	11149010 D	11149012	11159012 D
		SAMPLING DATE	11/14/90	11/15/90	11/14/90	11/15/90
		MATRIX	WATER	WATER	WATER	WATER
CMP	CL	COMPOUND	ug/l	ug/l	ug/l	ug/l
101	M	Antimony	BDL 42.9	66	97	78
102	M	Arsenic	BDL 0.7	BDL 0.5	BDL 0.7	BDL 0.5
103	M	Beryllium	BDL 1.4	BDL 1.4	BDL 1.4	BDL 1.4
104	M	Cadmium	BDL 3	BDL 3	BDL 3	BDL 3
105	M	Chromium	9 B	BDL 6.6	15	BDL 6.6
106	M	Copper	BDL 6.3	12 B	BDL 6.3	BDL 6.3
107	M	Lead	1.2 B	0.6 B	1.6 B	0.5 B
108	M	Mercury	BDL 0.2	BDL 0.2	BDL 0.2	BDL 0.2
109	M	Nickel	BDL 9.4	BDL 9.4	BDL 9.4	BDL 9.4
110	M	Selenium	BDL 1.2	BDL 1.2	BDL 1.2	BDL 1.2
111	M	Silver	BDL 9.6	BDL 9.6	BDL 9.6	BDL 9.6
112	M	Thallium	BDL 0.7	BDL 0.7	BDL 0.7	BDL 0.7
113	M	Zinc	37	82	76	47
114	M	Barium	45 B	45 B	BDL 41.2	BDL 41.2
115	M	Iron	1260	74 B	264	140
116	M	Manganese	24	4 B	4 B	BDL 2.9
117	M	Vanadium	BDL 7.6	BDL 7.6	BDL 7.6	BDL 7.6
118	M	Aluminum	185 B	92 B	55 B	BDL 31.6
120	M	Cobalt	BDL 12.1	BDL 12.1	BDL 12.1	BDL 12.1
121	M	Magnesium	3550 B	3580 B	2540 B	2680 B
129	M	Calcium	16100	14400	7590	6530
130	M	Sodium	29500	29500	16400	14500
131	M	Potassium	6840	6120	BDL 1210	BDL 1210
203	V	Benzene	BDL 5		BDL 5	
205	V	Bromoform	BDL 5		BDL 5	
206	V	Carbon tetrachloride	BDL 5		BDL 5	
207	V	Chlorobenzene	BDL 5		BDL 5	
208	V	Dibromochloromethane	BDL 5		BDL 5	
209	V	Chloroethane	BDL 10		BDL 10	
211	V	Chloroform	BDL 5		BDL 5	
212	V	Bromodichloromethane	BDL 5		BDL 5	
214	V	1,1-Dichloroethane	BDL 5		BDL 5	
215	V	1,2-Dichloroethane	BDL 5		BDL 5	
216	V	1,1-Dichloroethene	BDL 5		BDL 5	
217	V	1,2-Dichloropropane	BDL 5		BDL 5	
218	V	Cis-1,3-Dichloropropene	BDL 5		BDL 5	
219	V	Ethylbenzene	BDL 5		BDL 5	
220	V	Bromomethane	BDL 10		BDL 10	
221	V	Chloromethane	BDL 10		BDL 10	
222	V	Methylene chloride	7		BDL 5	
223	V	1,1,2,2-Tetrachloroethane	BDL 5		BDL 5	
224	V	Tetrachloroethene	BDL 5		BDL 5	
225	V	Toluene	BDL 5		BDL 5	
227	V	1,1,1-Trichloroethane	BDL 5		BDL 5	
228	V	1,1,2-Trichloroethane	BDL 5		BDL 5	
229	V	Trichloroethene	BDL 5		BDL 5	
231	V	Vinyl chloride	BDL 10		BDL 10	
250	V	Trans-1,3-Dichloropropene	BDL 5		BDL 5	
251	V	Styrene	BDL 5		BDL 5	
252	V	Acetone	BDL 10		10 B	
253	V	2-Butanone	BDL 10		BDL 10	
254	V	Carbon disulfide	BDL 5		BDL 5	
255	V	2-Hexanone	BDL 10		BDL 10	
256	V	4-Methyl-2-pentanone	BDL 10		BDL 10	
257	V	Vinyl acetate	BDL 10		BDL 10	
289	V	Xylenes (Total)	BDL 5		BDL 5	
299	V	1,2-Dichloroethene(Total)	BDL 5		BDL 5	

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	11159013	11159013 D	11159014	11159014 D
		LAB SAMPLE ID	11159013	11159013 D	11159014	11159014 D
		SAMPLING DATE	11/16/90	11/16/90	11/16/90	11/16/90
		MATRIX	WATER	WATER	WATER	WATER
CMP	CL	COMPOUND	ug/kg	ug/kg	ug/l	ug/l
101	M	Antimony	BDL 42.9	BDL 42.9	45 B	BDL 42.9
102	M	Arsenic	BDL 0.5	BDL 0.5	BDL 0.5	BDL 0.5
103	M	Beryllium	BDL 1.4	BDL 1.4	BDL 1.4	BDL 1.4
104	M	Cadmium	BDL 3	BDL 3	BDL 3	BDL 3
105	M	Chromium	BDL 6.6	BDL 6.6	12	BDL 6.6
106	M	Copper	BDL 6.3	BDL 6.3	BDL 6.3	BDL 6.3
107	M	Lead	1.1 B	BDL 0.3	0.4 B	1.6 B
108	M	Mercury	BDL 0.2	BDL 0.2	BDL 0.2	BDL 0.2
109	M	Nickel	BDL 9.4	BDL 9.4	BDL 9.4	BDL 9.4
110	M	Selenium	BDL 1.2	BDL 1.2	BDL 1.2	BDL 1.2
111	M	Silver	BDL 9.6	BDL 9.6	BDL 9.6	BDL 9.6
112	M	Thallium	BDL 0.6	BDL 0.6	BDL 0.6	BDL 0.6
113	M	Zinc	83	43	11 B	12 B
114	M	Barium	50 B	49 B	BDL 41.2	BDL 41.2
115	M	Iron	424	BDL 59.4	397	BDL 59.4
116	M	Manganese	7 B	6 B	BDL 2.9	BDL 2.9
117	M	Vanadium	BDL 7.6	BDL 7.6	BDL 7.6	BDL 7.6
118	M	Aluminum	183 B	BDL 31.6	BDL 31.6	BDL 31.6
120	M	Cobalt	BDL 12.1	BDL 12.1	BDL 12.1	BDL 12.1
121	M	Magnesium	2500 B	2210 B	2520 B	2540 B
129	M	Calcium	6220	5880	7160	7550
130	M	Sodium	68600	66200	26200	26900
131	M	Potassium	BDL 1210	BDL 1210	BDL 1210	BDL 1210
203	V	Benzene	BDL 5		BDL 5	
205	V	Bromoform	BDL 5		BDL 5	
206	V	Carbon tetrachloride	BDL 5		BDL 5	
207	V	Chlorobenzene	BDL 5		BDL 5	
208	V	Dibromochloromethane	BDL 5		BDL 5	
209	V	Chloroethane	BDL 10		BDL 10	
211	V	Chloroform	BDL 5		BDL 5	
212	V	Bromodichloromethane	BDL 5		BDL 5	
214	V	1,1-Dichloroethane	BDL 5		BDL 5	
215	V	1,2-Dichloroethane	BDL 5		BDL 5	
216	V	1,1-Dichloroethene	BDL 5		BDL 5	
217	V	1,2-Dichloropropane	BDL 5		BDL 5	
218	V	Cis-1,3-Dichloropropene	BDL 5		BDL 5	
219	V	Ethylbenzene	BDL 5		BDL 5	
220	V	Bromomethane	BDL 10		BDL 10	
221	V	Chloromethane	BDL 10		BDL 10	
222	V	Methylene chloride	3 BJ		BDL 5	
223	V	1,1,2,2-Tetrachloroethane	BDL 5		BDL 5	
224	V	Tetrachloroethene	BDL 5		BDL 5	
225	V	Toluene	BDL 5		BDL 5	
227	V	1,1,1-Trichloroethane	BDL 5		BDL 5	
228	V	1,1,2-Trichloroethane	BDL 5		BDL 5	
229	V	Trichloroethene	110		2 J	
231	V	Vinyl chloride	BDL 10		BDL 10	
250	V	Trans-1,3-Dichloropropene	BDL 5		BDL 5	
251	V	Styrene	BDL 5		BDL 5	
252	V	Acetone	5 BJ		5 BJ	
253	V	2-Butanone	BDL 10		BDL 10	
254	V	Carbon disulfide	BDL 5		BDL 5	
255	V	2-Hexanone	BDL 10		BDL 10	
256	V	4-Methyl-2-pentanone	BDL 10		BDL 10	
257	V	Vinyl acetate	BDL 10		BDL 10	
289	V	Xylenes (Total)	BDL 5		BDL 5	
299	V	1,2-Dichloroethene(Total)	3 J		BDL 5	

COLLIERVILLE SITE: RESULTS OF FOURTH QUARTER GROUNDWATER SAMPLING EVENT; NOVEMBER 13-16, 1990

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	11139016	11139016 D	11159019	11159019 D
		LAB SAMPLE ID	11139016	11139016 D	11159019	11159019 D
		SAMPLING DATE	11/13/90	11/14/90	11/16/90	11/16/90
		MATRIX	WATER	WATER	WATER	WATER
CMP	CL	COMPOUND	ug/l	ug/l	ug/l	ug/l
101	M	Antimony	BDL 42.9	BDL 42.9	103	BDL 42.9
102	M	Arsenic	BDL 0.5	0.6 B	BDL 0.5	BDL 0.5
103	M	Beryllium	BDL 1.4	BDL 1.4	5	BDL 1.4
104	M	Cadmium	BDL 3	BDL 3	5	BDL 3
105	M	Chromium	BDL 6.6	BDL 6.6	BDL 6.6	BDL 6.6
106	M	Copper	BDL 6.3	BDL 6.3	15 B	BDL 6.3
107	M	Lead	3.9	2.4 B	278	0.7 B
108	M	Mercury	BDL 0.2	BDL 0.2	BDL 0.2	BDL 0.2
109	M	Nickel	BDL 9.4	BDL 9.4	21 B	BDL 9.4
110	M	Selenium	BDL 1.2	BDL 1.2	BDL 1.2	BDL 1.2
111	M	Silver	BDL 9.6	BDL 9.6	BDL 9.6	BDL 9.6
112	M	Thallium	BDL 0.7	BDL 0.7	BDL 0.6	BDL 0.6
113	M	Zinc	5270	3120	146000	6360
114	M	Barium	BDL 41.2	BDL 41.2	244	177 B
115	M	Iron	559	71 B	34400	BDL 59.4
116	M	Manganese	40	27	1530	922
117	M	Vanadium	BDL 7.6	BDL 7.6	21 B	BDL 7.6
118	M	Aluminum	251	BDL 31.6	3660	39 B
120	M	Cobalt	BDL 12.1	BDL 12.1	BDL 12.1	BDL 12.1
121	M	Magnesium	1850 B	1240 B	10600	8150
129	M	Calcium	8730	3810 B	33100	27100
130	M	Sodium	18600	13700	44700	43200
131	M	Potassium	1420 B	BDL 1210	2110 B	BDL 1210
203	V	Benzene	BDL 5		BDL 250	
205	V	Bromoform	BDL 5		BDL 250	
206	V	Carbon tetrachloride	BDL 5		BDL 250	
207	V	Chlorobenzene	BDL 5		BDL 250	
208	V	Dibromochloromethane	BDL 5		BDL 250	
209	V	Chloroethane	BDL 10		BDL 500	
211	V	Chloroform	BDL 5		BDL 250	
212	V	Bromodichloromethane	BDL 5		BDL 250	
214	V	1,1-Dichloroethane	BDL 5		BDL 250	
215	V	1,2-Dichloroethane	BDL 5		BDL 250	
216	V	1,1-Dichloroethene	BDL 5		14	
217	V	1,2-Dichloropropane	BDL 5		BDL 250	
218	V	Cis-1,3-Dichloropropene	BDL 5		BDL 250	
219	V	Ethylbenzene	BDL 5		BDL 250	
220	V	Bromomethane	BDL 10		BDL 500	
221	V	Chloromethane	BDL 10		BDL 500	
222	V	Methylene chloride	BDL 5		210 BJ	
223	V	1,1,2,2-Tetrachloroethane	BDL 5		BDL 250	
224	V	Tetrachloroethene	BDL 5		BDL 250	
225	V	Toluene	BDL 5		BDL 250	
227	V	1,1,1-Trichloroethane	BDL 5		BDL 250	
228	V	1,1,2-Trichloroethane	BDL 5		BDL 250	
229	V	Trichloroethene	BDL 5		7300	
231	V	Vinyl chloride	BDL 10		5 J	
250	V	Trans-1,3-Dichloropropene	BDL 5		BDL 250	
251	V	Styrene	BDL 5		BDL 250	
252	V	Acetone	10 B		350 BJ	
253	V	2-Butanone	BDL 10		BDL 500	
254	V	Carbon disulfide	BDL 5		7	
255	V	2-Hexanone	BDL 10		BDL 500	
256	V	4-Methyl-2-pentanone	BDL 10		BDL 500	
257	V	Vinyl acetate	BDL 10		BDL 500	
289	V	Xylenes (Total)	BDL 5		BDL 250	
299	V	1,2-Dichloroethene(Total)	BDL 5		12000 E	

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	11159023	11159023 D	111690EC	111690WC
		LAB SAMPLE ID	11159023	11159023 D	111690EC	111690WC
		SAMPLING DATE	11/16/90	11/16/90	11/16/90	11/16/90
		MATRIX	WATER	WATER	WATER	WATER
CMP	CL	COMPOUND	ug/l	ug/l	ug/l	ug/l
101	M	Antimony	BDL 42.9	BDL 42.9		
102	M	Arsenic	BDL 0.5	BDL 0.5		
103	M	Beryllium	5	BDL 1.4		
104	M	Cadmium	4 B	BDL 3		
105	M	Chromium	10	BDL 6.6		
106	M	Copper	BDL 6.3	BDL 6.3		
107	M	Lead	25.3	0.6 B		
108	M	Mercury	BDL 0.2	BDL 0.2		
109	M	Nickel	12 B	BDL 9.4		
110	M	Selenium	BDL 1.2	BDL 1.2		
111	M	Silver	BDL 9.6	BDL 9.6		
112	M	Thallium	BDL 0.6	BDL 0.6		
113	M	Zinc	11200	3860		
114	M	Barium	87 B	65 B		
115	M	Iron	34500	612		
116	M	Manganese	272	148		
117	M	Vanadium	10 B	BDL 7.6		
118	M	Aluminum	2730	40 B		
120	M	Cobalt	BDL 12.1	BDL 12.1		
121	M	Magnesium	3080 B	2270 B		
129	M	Calcium	8010	6790		
130	M	Sodium	54100	53900		
131	M	Potassium	BDL 1210	BDL 1210		
203	V	Benzene	BDL 5		BDL 5	BDL 5
205	V	Bromoform	BDL 5		BDL 5	BDL 5
206	V	Carbon tetrachloride	BDL 5		BDL 5	BDL 5
207	V	Chlorobenzene	BDL 5		BDL 5	BDL 5
208	V	Dibromochloromethane	BDL 5		BDL 5	BDL 5
209	V	Chloroethane	BDL 10		BDL 10	BDL 10
211	V	Chloroform	BDL 5		BDL 5	BDL 5
212	V	Bromodichloromethane	BDL 5		BDL 5	BDL 5
214	V	1,1-Dichloroethane	BDL 5		BDL 5	BDL 5
215	V	1,2-Dichloroethane	BDL 5		BDL 5	BDL 5
216	V	1,1-Dichloroethene	BDL 5		BDL 5	BDL 5
217	V	1,2-Dichloropropane	BDL 5		BDL 5	BDL 5
218	V	Cis-1,3-Dichloropropene	BDL 5		BDL 5	BDL 5
219	V	Ethylbenzene	BDL 5		BDL 5	BDL 5
220	V	Bromomethane	BDL 10		BDL 10	BDL 10
221	V	Chloromethane	BDL 10		BDL 10	BDL 10
222	V	Methylene chloride	0.4 J		2 J	2 J
223	V	1,1,2,2-Tetrachloroethane	BDL 5		BDL 5	BDL 5
224	V	Tetrachloroethene	BDL 5		BDL 5	BDL 5
225	V	Toluene	BDL 5		BDL 5	BDL 5
227	V	1,1,1-Trichloroethane	BDL 5		BDL 5	BDL 5
228	V	1,1,2-Trichloroethane	BDL 5		BDL 5	BDL 5
229	V	Trichloroethene	120		BDL 5	3 J
231	V	Vinyl chloride	BDL 10		BDL 10	BDL 10
250	V	Trans-1,3-Dichloropropene	BDL 5		BDL 5	BDL 5
251	V	Styrene	BDL 5		BDL 5	BDL 5
252	V	Acetone	9 BJ		11 B	BDL 10
253	V	2-Butanone	BDL 10		BDL 10	BDL 10
254	V	Carbon disulfide	4 J		BDL 5	BDL 5
255	V	2-Hexanone	BDL 10		BDL 10	BDL 10
256	V	4-Methyl-2-pentanone	BDL 10		BDL 10	BDL 10
257	V	Vinyl acetate	BDL 10		BDL 10	BDL 10
289	V	Xylenes (Total)	BDL 5		BDL 5	BDL 5
299	V	1,2-Dichloroethene(Total)	11		BDL 5	BDL 5

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE I	11159027	11159027 D	11159029	11159029 D
		LAB SAMPLE I	11169027	11169027 D	11169029	11169029 D
		SAMPLING DATE	11/16/90	11/16/90	11/16/90	11/16/90
		MATRIX	WATER	WATER	WATER	WATER
CMP	CL	COMPOUND	ug/l	ug/l	ug/l	ug/l
101	M	Antimony	468	BDL 42.9	144	BDL 42.9
102	M	Arsenic	6 B	BDL 0.5	BDL 0.5	BDL 0.5
103	M	Beryllium	65	BDL 1.4	11	BDL 1.4
104	M	Cadmium	19	BDL 3	4 B	BDL 3
105	M	Chromium	340	BDL 6.6	69	BDL 6.6
106	M	Copper	303	BDL 6.3	56	BDL 6.3
107	M	Lead	178	0.5 B	37	1.7 B
108	M	Mercury	0.98	BDL 0.2	BDL 0.2	BDL 0.2
109	M	Nickel	366	10 B	47	BDL 9.4
110	M	Selenium	BDL 1.2	BDL 1.2	BDL 1.2	BDL 1.2
111	M	Silver	BDL 9.6	BDL 9.6	BDL 9.6	BDL 9.6
112	M	Thallium	BDL 0.6	BDL 0.6	BDL 0.6	BDL 0.6
113	M	Zinc	8360	1040	4670	1580
114	M	Barium	469	59 B	91 B	BDL 41.2
115	M	Iron	461000	BDL 59.4	67000	BDL 59.4
116	M	Manganese	2150	189	637	147
117	M	Vanadium	422	BDL 7.6	53	BDL 7.6
118	M	Aluminum	118000	50 B	16900	BDL 31.6
120	M	Cobalt	146	BDL 12.1	BDL 12.1	BDL 12.1
121	M	Magnesium	10200	5240	3030 B	1930 B
129	M	Calcium	45000	25200	8850	6710
130	M	Sodium	55200	63000	20600	18400
131	M	Potassium	7110	2050 B	2120 B	BDL 1210
203	V	Benzene	BDL 5		BDL 5	
205	V	Bromoform	BDL 5		BDL 5	
206	V	Carbon tetrachloride	BDL 5		BDL 5	
207	V	Chlorobenzene	BDL 5		BDL 5	
208	V	Dibromochloromethane	BDL 5		BDL 5	
209	V	Chloroethane	BDL 10		BDL 10	
211	V	Chloroform	BDL 5		BDL 5	
212	V	Bromodichloromethane	BDL 5		BDL 5	
214	V	1,1-Dichloroethane	BDL 5		BDL 5	
215	V	1,2-Dichloroethane	BDL 5		BDL 5	
216	V	1,1-Dichloroethene	BDL 5		BDL 5	
217	V	1,2-Dichloropropane	BDL 5		BDL 5	
218	V	Cis-1,3-Dichloropropene	BDL 5		BDL 5	
219	V	Ethylbenzene	BDL 5		BDL 5	
220	V	Bromomethane	BDL 10		BDL 10	
221	V	Chloromethane	BDL 10		BDL 10	
222	V	Methylene chloride	0.4 J		BDL 5	
223	V	1,1,2,2-Tetrachloroethane	BDL 5		BDL 5	
224	V	Tetrachloroethene	BDL 5		BDL 5	
225	V	Toluene	BDL 5		BDL 5	
227	V	1,1,1-Trichloroethane	BDL 5		BDL 5	
228	V	1,1,2-Trichloroethane	BDL 5		BDL 5	
229	V	Trichloroethene	BDL 5		BDL 5	
231	V	Vinyl chloride	BDL 10		BDL 10	
250	V	Trans-1,3-Dichloropropene	BDL 5		BDL 5	
251	V	Styrene	BDL 5		BDL 5	
252	V	Acetone	110 B		5 BJ	
253	V	2-Butanone	BDL 10		BDL 10	
254	V	Carbon disulfide	BDL 5		BDL 5	
255	V	2-Hexanone	BDL 10		BDL 10	
256	V	4-Methyl-2-pentanone	BDL 10		BDL 10	
257	V	Vinyl acetate	BDL 10		BDL 10	
289	V	Xylenes (Total)	BDL 5		BDL 5	
299	V	1,2-Dichloroethene(Total)	BDL 5		BDL 5	

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE I	11159031	11159031 D	11149033	11149033 D
		LAB SAMPLE I	11169031	11169031 D	11149033	082153.9 D
		SAMPLING DATE	11/16/90	11/16/90	11/14/90	11/15/90
		MATRIX	WATER	WATER	WATER	WATER
CMP	CL	COMPOUND	ug/l	ug/l	ug/l	ug/l
101	M	Antimony	46 B	BDL 42.9	1170	BDL 42.9
102	M	Arsenic	BDL 0.5	BDL 0.5	BDL 0.7	BDL 0.5
103	M	Beryllium	6	BDL 1.4	148	BDL 1.4
104	M	Cadmium	BDL 3	BDL 3	35	BDL 3
105	M	Chromium	43	BDL 6.6	300	BDL 6.6
106	M	Copper	BDL 6.3	BDL 6.3	131	BDL 6.3
107	M	Lead	20.9	0.8 B	61.5	0.3 B
108	M	Mercury	BDL 0.2	BDL 0.2	5.5	0.25
109	M	Nickel	12 B	BDL 9.4	352	BDL 9.4
110	M	Selenium	BDL 1.2	BDL 1.2	BDL 1.2	2.3 B
111	M	Silver	BDL 9.6	BDL 9.6	BDL 9.6	BDL 9.6
112	M	Thallium	BDL 0.6	BDL 0.6	BDL 0.7	BDL 0.7
113	M	Zinc	991	869	1120	148
114	M	Barium	51 B	BDL 41.2	995	43 B
115	M	Iron	41800	BDL 59.4	493000	250
116	M	Manganese	377	141	15600	236
117	M	Vanadium	17 B	BDL 7.6	494	BDL 7.6
118	M	Aluminum	2630	62 B	114000	BDL 31.6
120	M	Cobalt	BDL 12.1	BDL 12.1	502	BDL 12.1
121	M	Magnesium	1440 B	BDL 1010	11900	4990 B
129	M	Calcium	3260 B	1960 B	28900	12400
130	M	Sodium	21000	10800	26600	22900
131	M	Potassium	BDL 1210	BDL 1210	4010 B	BDL 1210
203	V	Benzene	BDL 50		BDL 5	
205	V	Bromoform	BDL 50		BDL 5	
206	V	Carbon tetrachloride	BDL 50		BDL 5	
207	V	Chlorobenzene	BDL 50		BDL 5	
208	V	Dibromochloromethane	BDL 50		BDL 5	
209	V	Chloroethane	BDL 100		BDL 10	
211	V	Chloroform	BDL 50		BDL 5	
212	V	Bromodichloromethane	BDL 50		BDL 5	
214	V	1,1-Dichloroethane	BDL 50		BDL 5	
215	V	1,2-Dichloroethane	BDL 50		BDL 5	
216	V	1,1-Dichloroethene	BDL 50		BDL 5	
217	V	1,2-Dichloropropane	BDL 50		BDL 5	
218	V	Cis-1,3-Dichloropropene	BDL 50		BDL 5	
219	V	Ethylbenzene	BDL 50		BDL 5	
220	V	Bromomethane	BDL 100		BDL 10	
221	V	Chloromethane	BDL 100		BDL 10	
222	V	Methylene chloride	46 BJ		7	
223	V	1,1,2,2-Tetrachloroethane	BDL 50		BDL 5	
224	V	Tetrachloroethene	BDL 50		BDL 5	
225	V	Toluene	BDL 50		BDL 5	
227	V	1,1,1-Trichloroethane	BDL 50		BDL 5	
228	V	1,1,2-Trichloroethane	BDL 50		BDL 5	
229	V	Trichloroethene	980		BDL 5	
231	V	Vinyl chloride	BDL 100		BDL 10	
250	V	Trans-1,3-Dichloropropene	BDL 50		BDL 5	
251	V	Styrene	BDL 50		BDL 5	
252	V	Acetone	68 B J		BDL 10	
253	V	2-Butanone	BDL 100		BDL 10	
254	V	Carbon disulfide	BDL 50		BDL 5	
255	V	2-Hexanone	BDL 100		BDL 10	
256	V	4-Methyl-2-pentanone	BDL 100		BDL 10	
257	V	Vinyl acetate	BDL 100		BDL 10	
289	V	Xylenes (Total)	BDL 50		BDL 5	
299	V	1,2-Dichloroethene(Total)	230		BDL 5	

COLLIERVILLE SITE: RESULTS OF FOURTH QUARTER GROUNDWATER SAMPLING EVENT; NOVEMBER 13-17, 1990

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE I	11169035	11169035 D	11169037	11169037 D
		LAB SAMPLE I	082235.7	082235.7 D	11179037	11179037 D
		SAMPLING DATE	11/17/90	11/17/90	11/17/90	11/17/90
		MATRIX	WATER	WATER	WATER	WATER
CMP	CL	COMPOUND	ug/l	ug/l	ug/l	ug/l
101	M	Antimony	BDL 42.9	BDL 42.9	189	BDL 42.9
102	M	Arsenic	BDL 0.7	BDL 0.7	BDL 0.7	BDL 0.7
103	M	Beryllium	2 B	BDL 1.4	24	BDL 1.4
104	M	Cadmium	BDL 3	BDL 3	BDL 3	BDL 3
105	M	Chromium	7 B	BDL 6.6	153	BDL 6.6
106	M	Copper	13 B	BDL 6.3	38	BDL 6.3
107	M	Lead	19	0.4 B	23.2	BDL 0.3
108	M	Mercury	BDL 0.2	BDL 0.2	BDL 0.2	BDL 0.2
109	M	Nickel	74	54	124	BDL 9.4
110	M	Selenium	BDL 1.2	BDL 1.2	BDL 1.2	BDL 1.2
111	M	Silver	BDL 9.6	BDL 9.6	BDL 9.6	BDL 9.6
112	M	Thallium	BDL 0.7	BDL 0.6	BDL 0.7	BDL 0.6
113	M	Zinc	651	396	316	23
114	M	Barium	62 B	BDL 41.2	408	108 B
115	M	Iron	11600	272	159000	66 B
116	M	Manganese	338	250	1280	168
117	M	Vanadium	10 B	BDL 7.6	152	BDL 7.6
118	M	Aluminum	3130	BDL 31.6	28500	BDL 31.6
120	M	Cobalt	BDL 12.1	BDL 12.1	24 B	BDL 12.1
121	M	Magnesium	3190 B	2530 B	11900	7900
129	M	Calcium	12500	10400	22500	13100
130	M	Sodium	21100	20300	46500	31000
131	M	Potassium	2560 B	2340 B	7940	3850 B
203	V	Benzene	BDL 5		BDL 25	
205	V	Bromoform	BDL 5		BDL 25	
206	V	Carbon tetrachloride	BDL 5		BDL 25	
207	V	Chlorobenzene	BDL 5		BDL 25	
208	V	Dibromochloromethane	BDL 5		BDL 25	
209	V	Chloroethane	BDL 10		BDL 50	
211	V	Chloroform	BDL 5		BDL 25	
212	V	Bromodichloromethane	BDL 5		BDL 25	
214	V	1,1-Dichloroethane	BDL 5		BDL 25	
215	V	1,2-Dichloroethane	BDL 5		BDL 25	
216	V	1,1-Dichloroethene	BDL 5		BDL 25	
217	V	1,2-Dichloropropane	BDL 5		BDL 25	
218	V	Cis-1,3-Dichloropropene	BDL 5		BDL 25	
219	V	Ethylbenzene	BDL 5		BDL 25	
220	V	Bromomethane	BDL 10		BDL 50	
221	V	Chloromethane	BDL 10		BDL 50	
222	V	Methylene chloride	BDL 5		18 BJ	
223	V	1,1,2,2-Tetrachloroethane	BDL 5		BDL 25	
224	V	Tetrachloroethene	BDL 5		BDL 25	
225	V	Toluene	BDL 5		BDL 25	
227	V	1,1,1-Trichloroethane	BDL 5		BDL 25	
228	V	1,1,2-Trichloroethane	BDL 5		BDL 25	
229	V	Trichloroethene	BDL 5		840	
231	V	Vinyl chloride	BDL 10		BDL 50	
250	V	Trans-1,3-Dichloropropene	BDL 5		BDL 25	
251	V	Styrene	BDL 5		BDL 25	
252	V	Acetone	9 BJ		28 BJ	
253	V	2-Butanone	BDL 10		BDL 50	
254	V	Carbon disulfide	BDL 5		BDL 25	
255	V	2-Hexanone	BDL 10		BDL 50	
256	V	4-Methyl-2-pentanone	BDL 10		BDL 50	
257	V	Vinyl acetate	BDL 10		BDL 50	
289	V	Xylenes (Total)	BDL 5		BDL 25	
299	V	1,2-Dichloroethene(Total)	BDL 5		14 J	

		SITE	COLLIERVILLE		COLLIERVILLE	
		SAMPLE I	11169039		11169039D	
		LAB SAMPLE I	082237.3		082237.3 D	
		SAMPLING DATE	11/17/90		11/17/90	
		MATRIX	WATER		WATER	
CMP	CL	COMPOUND	ug/l		ug/l	
101	M	Antimony	198		BDL	42.9
102	M	Arsenic	0.8	B	BDL	0.7
103	M	Beryllium	20		BDL	1.4
104	M	Cadmium	BDL	3	BDL	3
105	M	Chromium	63		BDL	6.6
106	M	Copper	61		7	B
107	M	Lead	34.8		0.5	B
108	M	Mercury	BDL	0.2	BDL	0.2
109	M	Nickel	100		19	B
110	M	Selenium	BDL	1.2	BDL	1.2
111	M	Silver	BDL	9.6	BDL	9.6
112	M	Thallium	BDL	0.7	BDL	0.6
113	M	Zinc	3600		1160	
114	M	Barium	284		91	B
115	M	Iron	137000		162	
116	M	Manganese	1000		382	
117	M	Vanadium	64		BDL	7.6
118	M	Aluminum	11300		BDL	31.6
120	M	Cobalt	21	B	BDL	12.1
121	M	Magnesium	9660		5660	
129	M	Calcium	26200		12400	
130	M	Sodium	52700		24600	
131	M	Potassium	9130		4340	B
203	V	Benzene	BDL	250		
205	V	Bromoform	BDL	250		
206	V	Carbon tetrachloride	BDL	250		
207	V	Chlorobenzene	BDL	250		
208	V	Dibromochloromethane	BDL	250		
209	V	Chloroethane	BDL	500		
211	V	Chloroform	BDL	250		
212	V	Bromodichloromethane	BDL	250		
214	V	1,1-Dichloroethane	BDL	250		
215	V	1,2-Dichloroethane	BDL	250		
216	V	1,1-Dichloroethene	BDL	250		
217	V	1,2-Dichloropropane	BDL	250		
218	V	Cis-1,3-Dichloropropene	BDL	250		
219	V	Ethylbenzene	BDL	250		
220	V	Bromomethane	BDL	500		
221	V	Chloromethane	BDL	500		
222	V	Methylene chloride	210	B J		
223	V	1,1,2,2-Tetrachloroethane	BDL	250		
224	V	Tetrachloroethene	BDL	250		
225	V	Toluene	BDL	250		
227	V	1,1,1-Trichloroethane	BDL	250		
228	V	1,1,2-Trichloroethane	BDL	250		
229	V	Trichloroethene	3400			
231	V	Vinyl chloride	BDL	500		
250	V	Trans-1,3-Dichloropropene	BDL	250		
251	V	Styrene	BDL	250		
252	V	Acetone	250	BJ		
253	V	2-Butanone	BDL	500		
254	V	Carbon disulfide	BDL	250		
255	V	2-Hexanone	BDL	500		
256	V	4-Methyl-2-pentanone	BDL	500		
257	V	Vinyl acetate	BDL	500		
289	V	Xylenes (Total)	BDL	250		
299	V	1,2-Dichloroethene(Total)	BDL	250		

METHOD 8010 RESULTS

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE I	11139001	11139001B	11149003	11139004	11159005
		LAB SAMPLE I	11139001	11139001B	11149003	11139004	11159005
		SAMPLING DATE	11/13/90	11/13/90	11/14/90	11/13/90	11/16/90
		MATRIX	WATER	WATER	WATER	WATER	WATER
CMP	CL	COMPOUND	ug/l	ug/l	ug/l	ug/l	ug/l
203	V	Benzene					
205	V	Bromoform	ND	ND	ND	ND	ND
206	V	Carbon tetrachloride	ND	ND	ND	ND	ND
207	V	Chlorobenzene	ND	ND	ND	ND	ND
208	V	Dibromochloromethane	ND	ND	ND	ND	ND
209	V	Chloroethane	ND	ND	ND	ND	ND
211	V	Chloroform	ND	ND	ND	ND	ND
212	V	Bromodichloromethane	ND	ND	ND	ND	ND
214	V	1,1-Dichloroethane	ND	ND	ND	ND	ND
215	V	1,2-Dichloroethane	ND	ND	ND	ND	ND
216	V	1,1-Dichloroethene	ND	ND	ND	ND	ND
217	V	1,2-Dichloropropane	ND	ND	ND	ND	ND
218	V	Cis-1,3-Dichloropropene	ND	ND	ND	ND	ND
219	V	Ethylbenzene					
220	V	Bromomethane	ND	ND	ND	ND	ND
221	V	Chloromethane	ND	ND	ND	ND	ND
222	V	Methylene chloride	ND	ND	ND	ND	ND
223	V	1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND
224	V	Tetrachloroethene	ND	ND	ND	ND	ND
225	V	Toluene					
227	V	1,1,1-Trichloroethane	ND	ND	ND	ND	ND
228	V	1,1,2-Trichloroethane	ND	ND	ND	ND	ND
229	V	Trichloroethene	798	508	7915	35	5262
231	V	Vinyl chloride	ND	ND	ND	ND	ND
250	V	Trans-1,3-Dichloropropene	ND	ND	ND	ND	ND
251	V	Styrene					
252	V	Acetone					
253	V	2-Butanone					
254	V	Carbon disulfide					
255	V	2-Hexanone					
256	V	4-Methyl-2-pentanone					
257	V	Vinyl acetate					
289	V	Xylenes (Total)					
299	V	1,2-Dichloroethene(Total)	ND	ND	11	ND	ND
	V	Trihlorodifluoromethane	ND	ND	ND	ND	ND
	V	1,1-Dichloroethylene	ND	ND	7.2	ND	5
	V	2-Chloroethylvinylether	ND	ND	ND	ND	ND
	V	1,3-Dichlorobenzene	ND	ND	ND	ND	ND
	V	1,2-Dichlorobenzene	ND	ND	ND	ND	ND
	V	1,4-Dichlorobenzene	ND	ND	ND	ND	ND

*ND - Not detected at or above the method detection limit of 1.0

METHOD 8010 RESULTS

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE I	11149006	11149010	11149012	11159013
		LAB SAMPLE I	11149006	11149010	11149012	11159013
		SAMPLING DATE	11/14/90	11/14/90	11/14/90	11/16/90
		MATRIX	WATER	WATER	WATER	WATER
CMP	CL	COMPOUND	ug/l	ug/l	ug/l	ug/l
203	V	Benzene				
205	V	Bromoform	ND	ND	ND	ND
206	V	Carbon tetrachloride	ND	ND	ND	ND
207	V	Chlorobenzene	ND	ND	ND	ND
208	V	Dibromochloromethane	ND	ND	ND	ND
209	V	Chloroethane	ND	ND	ND	ND
211	V	Chloroform	ND	ND	ND	ND
212	V	Bromodichloromethane	ND	ND	ND	ND
214	V	1,1-Dichloroethane	ND	ND	ND	ND
215	V	1,2-Dichloroethane	ND	ND	ND	ND
216	V	1,1-Dichloroethene	ND	ND	ND	ND
217	V	1,2-Dichloropropane	ND	ND	ND	ND
218	V	Cis-1,3-Dichloropropene	ND	ND	ND	ND
219	V	Ethylbenzene				
220	V	Bromomethane	ND	ND	ND	ND
221	V	Chloromethane	ND	ND	ND	ND
222	V	Methylene chloride	ND	ND	ND	ND
223	V	1,1,2,2-Tetrachloroethane	ND	ND	ND	ND
224	V	Tetrachloroethene	ND	ND	ND	ND
225	V	Toluene				
227	V	1,1,1-Trichloroethane	ND	ND	ND	ND
228	V	1,1,2-Trichloroethane	ND	ND	ND	ND
229	V	Trichloroethene	4.7	ND	ND	98
231	V	Vinyl chloride	ND	ND	ND	ND
250	V	Trans-1,3-Dichloropropene	ND	ND	ND	ND
251	V	Styrene				
252	V	Acetone				
253	V	2-Butanone				
254	V	Carbon disulfide				
255	V	2-Hexanone				
256	V	4-Methyl-2-pentanone				
257	V	Vinyl acetate				
289	V	Xylenes (Total)				
299	V	1,2-Dichloroethene(Total)	ND	ND	ND	ND
	V	Trihlorodifluoromethane	ND	ND	ND	ND
	V	1,1-Dichloroethylene	ND	ND	ND	ND
	V	2-Chloroethylvinylether	ND	ND	ND	ND
	V	1,3-Dichlorobenzene	ND	ND	ND	ND
	V	1,2-Dichlorobenzene	ND	ND	ND	ND
	V	1,4-Dichlorobenzene	ND	ND	ND	ND

METHOD 8010 RESULTS

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE I	11159014	11139016	11159019	11159023
		LAB SAMPLE I	11159014	11139016	11159019	11159023
		SAMPLING DATE	11/16/90	11/13/90	11/16/90	11/16/90
		MATRIX	WATER	WATER	WATER	WATER
CMP	CL	COMPOUND	ug/l	ug/l	ug/l	ug/l
203	V	Benzene				
205	V	Bromoform	ND	ND	ND	ND
206	V	Carbon tetrachloride	ND	ND	ND	ND
207	V	Chlorobenzene	ND	ND	ND	ND
208	V	Dibromochloromethane	ND	ND	ND	ND
209	V	Chloroethane	ND	ND	ND	ND
211	V	Chloroform	ND	ND	ND	ND
212	V	Bromodichloromethane	ND	ND	ND	ND
214	V	1,1-Dichloroethane	ND	ND	ND	1.1
215	V	1,2-Dichloroethane	ND	ND	ND	ND
216	V	1,1-Dichloroethene	ND	ND	ND	ND
217	V	1,2-Dichloropropane	ND	ND	ND	ND
218	V	Cis-1,3-Dichloropropene	ND	ND	ND	ND
219	V	Ethylbenzene				
220	V	Bromomethane	ND	ND	ND	ND
221	V	Chloromethane	ND	ND	ND	ND
222	V	Methylene chloride	ND	ND	ND	ND
223	V	1,1,2,2-Tetrachloroethane	ND	ND	ND	ND
224	V	Tetrachloroethene	ND	ND	ND	ND
225	V	Toluene				
227	V	1,1,1-Trichloroethane	ND	ND	ND	ND
228	V	1,1,2-Trichloroethane	ND	ND	ND	ND
229	V	Trichloroethene	ND	ND	3322	88
231	V	Vinyl chloride	ND	ND	ND	ND
250	V	Trans-1,3-Dichloropropene	ND	ND	ND	ND
251	V	Styrene				
252	V	Acetone				
253	V	2-Butanone				
254	V	Carbon disulfide				
255	V	2-Hexanone				
256	V	4-Methyl-2-pentanone				
257	V	Vinyl acetate				
289	V	Xylenes (Total)				
299	V	1,2-Dichloroethene(Total)	ND	ND	ND	ND
	V	Trihlorodifluoromethane	ND	ND	ND	ND
	V	1,1-Dichloroethylene	ND	ND	ND	ND
	V	2-Chloroethylvinylether	ND	ND	ND	ND
	V	1,3-Dichlorobenzene	ND	ND	ND	ND
	V	1,2-Dichlorobenzene	ND	ND	ND	ND
	V	1,4-Dichlorobenzene	ND	ND	ND	ND

METHOD 8010 RESULTS

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE I	11159027	11159029	11159031	11149033
		LAB SAMPLE I	11169027	11169029	11169031	11149033
		SAMPLING DATE	11/16/90	11/16/90	11/16/90	11/14/90
		MATRIX	WATER	WATER	WATER	WATER
CMP	CL	COMPOUND	ug/l	ug/l	ug/l	ug/l
203	V	Benzene	ND	ND	ND	ND
205	V	Bromoform	ND	ND	ND	ND
206	V	Carbon tetrachloride	ND	ND	ND	ND
207	V	Chlorobenzene	ND	ND	ND	ND
208	V	Dibromochloromethane	ND	ND	ND	ND
209	V	Chloroethane	ND	ND	ND	ND
211	V	Chloroform	ND	ND	ND	ND
212	V	Bromodichloromethane	ND	ND	ND	ND
214	V	1,1-Dichloroethane	ND	ND	ND	ND
215	V	1,2-Dichloroethane	ND	ND	ND	ND
216	V	1,1-Dichloroethene	ND	ND	ND	ND
217	V	1,2-Dichloropropane	ND	ND	ND	ND
218	V	Cis-1,3-Dichloropropene	ND	ND	ND	ND
219	V	Ethylbenzene	ND	ND	ND	ND
220	V	Bromomethane	ND	ND	ND	ND
221	V	Chloromethane	ND	ND	ND	ND
222	V	Methylene chloride	ND	ND	ND	ND
223	V	1,1,2,2-Tetrachloroethane	ND	ND	ND	ND
224	V	Tetrachloroethene	ND	ND	ND	ND
225	V	Toluene	ND	ND	ND	ND
227	V	1,1,1-Trichloroethane	ND	ND	ND	ND
228	V	1,1,2-Trichloroethane	ND	ND	430	ND
229	V	Trichloroethene	ND	ND	ND	ND
231	V	Vinyl chloride	ND	ND	ND	ND
250	V	Trans-1,3-Dichloropropene	ND	ND		
251	V	Styrene				
252	V	Acetone				
253	V	2-Butanone				
254	V	Carbon disulfide				
255	V	2-Hexanone				
256	V	4-Methyl-2-pentanone				
257	V	Vinyl acetate				
289	V	Xylenes (Total)	ND	ND	ND	ND
299	V	1,2-Dichloroethene(Total)	ND	ND	ND	ND
	V	Trihlorodifluoromethane	ND	ND	ND	ND
	V	1,1-Dichloroethylene	ND	ND	ND	ND
	V	2-Chloroethylvinylether	ND	ND	ND	ND
	V	1,3-Dichlorobenzene	ND	ND	ND	ND
	V	1,2-Dichlorobenzene	ND	ND	ND	ND
	V	1,4-Dichlorobenzene	ND	ND	ND	ND

*ND – Not detected at or above the method detection limit of 1.0

METHOD 8010 RESULTS

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE I	11169035	11169037	11169039
		LAB SAMPLE I	0822357	11179037	0822373
		SAMPLING DATE	11/19/90	11/19/90	11/19/90
		MATRIX	WATER	WATER	WATER
CMP	CL	COMPOUND	ug/l	ug/l	ug/l
203	V	Benzene			
205	V	Bromoform	ND	ND	ND
206	V	Carbon tetrachloride	ND	ND	ND
207	V	Chlorobenzene	ND	ND	ND
208	V	Dibromochloromethane	ND	ND	ND
209	V	Chloroethane	ND	ND	ND
211	V	Chloroform	ND	ND	ND
212	V	Bromodichloromethane	ND	ND	ND
214	V	1,1-Dichloroethane	ND	ND	ND
215	V	1,2-Dichloroethane	ND	ND	ND
216	V	1,1-Dichloroethene	ND	ND	ND
217	V	1,2-Dichloropropane	ND	ND	ND
218	V	Cis-1,3-Dichloropropene	ND	ND	ND
219	V	Ethylbenzene			
220	V	Bromomethane	ND	ND	ND
221	V	Chloromethane	ND	ND	ND
222	V	Methylene chloride	ND	ND	ND
223	V	1,1,2,2-Tetrachloroethane	ND	ND	ND
224	V	Tetrachloroethene	ND	ND	ND
225	V	Toluene			
227	V	1,1,1-Trichloroethane	ND	ND	ND
228	V	1,1,2-Trichloroethane	ND	ND	ND
229	V	Trichloroethene	ND	397	1963
231	V	Vinyl chloride	ND	ND	ND
250	V	Trans-1,3-Dichloropropene	ND	ND	ND
251	V	Styrene			
252	V	Acetone			
253	V	2-Butanone			
254	V	Carbon disulfide			
255	V	2-Hexanone			
256	V	4-Methyl-2-pentanone			
257	V	Vinyl acetate			
289	V	Xylenes (Total)			
299	V	1,2-Dichloroethene(Total)	ND	ND	ND
	V	Trihlorodifluoromethane	ND	ND	ND
	V	1,1-Dichloroethylene	ND	ND	ND
	V	2-Chloroethylvinylether	ND	ND	ND
	V	1,3-Dichlorobenzene	ND	ND	ND
	V	1,2-Dichlorobenzene	ND	ND	ND
	V	1,4-Dichlorobenzene	ND	ND	ND

COLLIERVILLE SITE: RESULTS OF FIRST QUARTER GROUNDWATER SAMPLING EVENT: FEBRUARY 19–21, 1991

		SITE	COLLIERVILLE		COLLIERVILLE		COLLIERVILLE		COLLIERVILLE	
		SAMPLE ID	02199101		02199101D		02199101B		02199101B D	
		LAB SAMPLE ID	02199101		02199101D		02199101B		02199101B D	
		SAMPLING DATE	02/19/91		02/19/91		02/19/91		02/19/91	
		MATRIX	WATER		WATER		WATER		WATER	
CMP	CL	COMPOUND	ug/l		ug/l		ug/l		ug/l	
101	M	Antimony								
102	M	Arsenic								
103	M	Beryllium	BDL	10	BDL	10	BDL	10	BDL	10
104	M	Cadmium								
105	M	Chromium	104		BDL	10	BDL	10	BDL	10
106	M	Copper	108		BDL	10	BDL	10	BDL	10
107	M	Lead	BDL	100	BDL	100	BDL	100	BDL	100
108	M	Mercury								
109	M	Nickel	184		189		181		183	
110	M	Selenium								
111	M	Silver	BDL	50	BDL	50	BDL	50	BDL	50
112	M	Thallium								
113	M	Zinc	382		BDL	10	7100		7000	
114	M	Barium	55		BDL	50	115		103	
115	M	Iron	185		70		744		582	
116	M	Manganese	BDL	10	BDL	10	242		217	
117	M	Vanadium	BDL	10	BDL	10	BDL	10	BDL	10
118	M	Aluminum	62		23		248		48	
120	M	Cobalt	BDL	20	BDL	20	BDL	20	BDL	20
121	M	Magnesium	2250		1420		1450		1400	
129	M	Calcium	4610		4030		6750		6710	
130	M	Sodium	17200		17700		18200		18400	
131	M	Potassium	350		313		295		336	
203	V	Benzene	BDL	5			BDL	5		
205	V	Bromoform	BDL	5			BDL	5		
206	V	Carbon tetrachloride	BDL	5			BDL	5		
207	V	Chlorobenzene	BDL	5			BDL	5		
208	V	Dibromochloromethane	BDL	5			BDL	5		
209	V	Chloroethane	BDL	10			BDL	10		
211	V	Chloroform	BDL	5			BDL	5		
212	V	Bromodichloromethane	BDL	5			BDL	5		
214	V	1,1-Dichloroethane	BDL	5			BDL	5		
215	V	1,2-Dichloroethane	BDL	5			BDL	5		
216	V	1,1-Dichloroethene	BDL	5			BDL	5		
217	V	1,2-Dichloropropane	BDL	5			BDL	5		
218	V	Cis-1,3-Dichloropropene	BDL	5			BDL	5		
219	V	Ethylbenzene	BDL	5			BDL	5		
220	V	Bromomethane	BDL	10			BDL	10		
221	V	Chloromethane	BDL	10			BDL	10		
222	V	Methylene chloride	BDL	5			BDL	5		
223	V	1,1,2,2-Tetrachloroethane	BDL	5			BDL	5		
224	V	Tetrachloroethene	BDL	5			BDL	5		
225	V	Toluene	BDL	5			BDL	5		
227	V	1,1,1-Trichloroethane	BDL	5			BDL	5		
228	V	1,1,2-Trichloroethane	BDL	5			BDL	5		
229	V	Trichloroethene	840				950			
231	V	Vinyl chloride	BDL	10			BDL	10		
250	V	Trans-1,3-Dichloropropene	BDL	5			BDL	5		
251	V	Styrene	BDL	5			BDL	5		
252	V	Acetone	BDL	10			17			
253	V	2-Butanone	BDL	100			BDL	100		
254	V	Carbon disulfide	BDL	5			BDL	5		
255	V	2-Hexanone	BDL	50			BDL	50		
256	V	4-Methyl-2-pentanone	BDL	50			BDL	50		
257	V	Vinyl acetate	BDL	10			BDL	10		
289	V	Xylenes (Total)	BDL	5			BDL	5		
299	V	1,2-Dichloroethene(Total)	130				300			

COLLIERVILLE SITE: RESULTS OF FIRST QUARTER GROUNDWATER SAMPLING EVENT: FEBRUARY 19–21, 1991

		SITE	COLLIERVILLE		COLLIERVILLE		COLLIERVILLE		COLLIERVILLE	
		SAMPLE ID	02219103		02219103 D		02209104		02209104 D	
		LAB SAMPLE ID	02219103		02219103 D		02209104		02209104 D	
		SAMPLING DATE	02/19/91		02/19/91		02/19/91		02/19/91	
		MATRIX	WATER		WATER		WATER		WATER	
CMP	CL	COMPOUND	ug/l		ug/l		ug/kg		ug/kg	
101	M	Antimony								
102	M	Arsenic								
103	M	Beryllium	BDL	10	BDL	10	BDL	10	BDL	10
104	M	Cadmium								
105	M	Chromium	BDL	10	BDL	10	61		146	
106	M	Copper	BDL	10	BDL	10	BDL	10	BDL	10
107	M	Lead	BDL	100	BDL	100	BDL	100	BDL	100
108	M	Mercury								
109	M	Nickel	160		204		149		177	
110	M	Selenium								
111	M	Silver	BDL	50	BDL	50	BDL	50	BDL	50
112	M	Thallium								
113	M	Zinc	29000		19600		5300		3620	
114	M	Barium	90		93		53		53	
115	M	Iron	5240		724		1890		844	
116	M	Manganese	700		670		52		61	
117	M	Vanadium	BDL	100	BDL	10	BDL	10	BDL	10
118	M	Aluminum	1300		236		1030		24	
120	M	Cobalt	BDL	20	BDL	20	BDL	20	BDL	20
121	M	Magnesium	4000		3820		3290		2920	
129	M	Calcium	24700		25100		20400		20800	
130	M	Sodium	20300		22800		28300		30300	
131	M	Potassium	514		466		679		644	
203	V	Benzene	BDL	5						
205	V	Bromoform	BDL	5						
206	V	Carbon tetrachloride	BDL	5						
207	V	Chlorobenzene	BDL	5						
208	V	Dibromochloromethane	BDL	5						
209	V	Chloroethane	BDL	10						
211	V	Chloroform	BDL	5						
212	V	Bromodichloromethane	BDL	5						
214	V	1,1-Dichloroethane	BDL	5						
215	V	1,2-Dichloroethane	BDL	5						
216	V	1,1-Dichloroethene	7.9							
217	V	1,2-Dichloropropane	BDL	5						
218	V	Cis-1,3-Dichloropropene	BDL	5						
219	V	Ethylbenzene	BDL	5						
220	V	Bromomethane	BDL	10						
221	V	Chloromethane	BDL	10						
222	V	Methylene chloride	BDL	5						
223	V	1,1,2,2-Tetrachloroethane	BDL	5						
224	V	Tetrachloroethene	BDL	5						
225	V	Toluene	BDL	5						
227	V	1,1,1-Trichloroethane	BDL	5						
228	V	1,1,2-Trichloroethane	BDL	5						
229	V	Trichloroethene	250							
231	V	Vinyl chloride	3.4 J							
250	V	Trans-1,3-Dichloropropene	BDL	5						
251	V	Styrene	BDL	5						
252	V	Acetone	156							
253	V	2-Butanone	BDL	10						
254	V	Carbon disulfide	BDL	5						
255	V	2-Hexanone	BDL	10						
256	V	4-Methyl-2-pentanone	BDL	10						
257	V	Vinyl acetate	BDL	10						
289	V	Xylenes (Total)	BDL	5						
299	V	1,2-Dichloroethene(Total)	190							

COLLIERVILLE SITE: RESULTS OF FIRST QUARTER GROUNDWATER SAMPLING EVENT: FEBRUARY 19-21, 1991

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	02199105	02199105 D	02219106	02219106 D
		LAB SAMPLE ID	02199105	02199105 D	02219106	02219106 D
		SAMPLING DATE	02/19/91	02/19/91	02/19/91	02/21/91
		MATRIX	WATER	WATER	WATER	WATER
CMP	CL	COMPOUND	ug/l	ug/l	ug/l	ug/l
101	M	Antimony				
102	M	Arsenic				
103	M	Beryllium	BDL 10	BDL 10	BDL 10	BDL 10
104	M	Cadmium				
105	M	Chromium	19	BDL 10	BDL 10	BDL 10
106	M	Copper	18	BDL 10	BDL 10	220
107	M	Lead	BDL 100	BDL 100	BDL 100	BDL 100
108	M	Mercury				
109	M	Nickel	158	113	123	141
110	M	Selenium				
111	M	Silver	BDL 50	BDL 50	BDL 50	BDL 50
112	M	Thallium				
113	M	Zinc	4900	2340	3200	3400
114	M	Barium	219	218	52	54
115	M	Iron	25700	72	486	311
116	M	Manganese	207	148	30	34
117	M	Vanadium	BDL 10	BDL 10	BDL 10	BDL 10
118	M	Aluminum	8200	32	101	35
120	M	Cobalt	BDL 20	BDL 20	BDL 20	BDL 20
121	M	Magnesium	7000	7270	1890	1940
129	M	Calcium	31900	33100	5690	5960
130	M	Sodium	113000	126000	15600	16600
131	M	Potassium	2340	1530	1435	416
203	V	Benzene	BDL 5			
205	V	Bromoform	BDL 5			
206	V	Carbon tetrachloride	BDL 5			
207	V	Chlorobenzene	BDL 5			
208	V	Dibromochloromethane	BDL 5			
209	V	Chloroethane	BDL 10			
211	V	Chloroform	BDL 5			
212	V	Bromodichloromethane	BDL 5			
214	V	1,1-Dichloroethane	BDL 5			
215	V	1,2-Dichloroethane	BDL 5			
216	V	1,1-Dichloroethene	BDL 5			
217	V	1,2-Dichloropropane	BDL 5			
218	V	Cis-1,3-Dichloropropene	BDL 5			
219	V	Ethylbenzene	BDL 5			
220	V	Bromomethane	BDL 10			
221	V	Chloromethane	BDL 10			
222	V	Methylene chloride	BDL 5			
223	V	1,1,2,2-Tetrachloroethane	BDL 5			
224	V	Tetrachloroethene	BDL 5			
225	V	Toluene	BDL 5			
227	V	1,1,1-Trichloroethane	BDL 5			
228	V	1,1,2-Trichloroethane	BDL 5			
229	V	Trichloroethene	8700			
231	V	Vinyl chloride	BDL 10			
250	V	Trans-1,3-Dichloropropene	BDL 5			
251	V	Styrene	BDL 5			
252	V	Acetone	140			
253	V	2-Butanone	BDL 100			
254	V	Carbon disulfide	BDL 5			
255	V	2-Hexanone	BDL 50			
256	V	4-Methyl-2-pentanone	BDL 50			
257	V	Vinyl acetate	BDL 10			
289	V	Xylenes (Total)	BDL 5			
299	V	1,2-Dichloroethene(Total)	1100			

		SITE	COLLIERVILLE		COLLIERVILLE		COLLIERVILLE		COLLIERVILLE	
		SAMPLE ID	02209110		02209110 D		02219112		02219112 D	
		LAB SAMPLE ID	02209110		02209110 D		02219112		02219112 D	
		SAMPLING DATE	02/19/91		02/19/91		02/21/91		02/21/91	
		MATRIX	WATER		WATER		WATER		WATER	
CMP	CL	COMPOUND	ug/l		ug/l		ug/l		ug/l	
101	M	Antimony								
102	M	Arsenic								
103	M	Beryllium	BDL	10	BDL	10	BDL	10	BDL	10
104	M	Cadmium								
105	M	Chromium	255		BDL	10	BDL	10	BDL	10
106	M	Copper	BDL	10	BDL	10	BDL	10	BDL	10
107	M	Lead	BDL	100	BDL	100	BDL	100	BDL	100
108	M	Mercury								
109	M	Nickel	251		129		101		45	
110	M	Selenium								
111	M	Silver	BDL	50	BDL	50	BDL	50	BDL	50
112	M	Thallium								
113	M	Zinc	25		24		10		BDL	10
114	M	Barium	55		53		BDL	50	BDL	50
115	M	Iron	1020		46		86		28	
116	M	Manganese	72		BDL	10	BDL	10	BDL	10
117	M	Vanadium	BDL	10	BDL	10	BDL	10	BDL	10
118	M	Aluminum	49		28		42		40	
120	M	Cobalt	BDL	20	BDL	20	BDL	20	BDL	20
121	M	Magnesium	2770		2690		1940		1880	
129	M	Calcium	12200		12600		5660		5570	
130	M	Sodium	27800		24600		13500		13300	
131	M	Potassium	4250		4120		5370		540	
203	V	Benzene								
205	V	Bromoform								
206	V	Carbon tetrachloride								
207	V	Chlorobenzene								
208	V	Dibromochloromethane								
209	V	Chloroethane								
211	V	Chloroform								
212	V	Bromodichloromethane								
214	V	1,1-Dichloroethane								
215	V	1,2-Dichloroethane								
216	V	1,1-Dichloroethene								
217	V	1,2-Dichloropropane								
218	V	Cis-1,3-Dichloropropene								
219	V	Ethylbenzene								
220	V	Bromomethane								
221	V	Chloromethane								
222	V	Methylene chloride								
223	V	1,1,2,2-Tetrachloroethane								
224	V	Tetrachloroethene								
225	V	Toluene								
227	V	1,1,1-Trichloroethane								
228	V	1,1,2-Trichloroethane								
229	V	Trichloroethene								
231	V	Vinyl chloride								
250	V	Trans-1,3-Dichloropropene								
251	V	Styrene								
252	V	Acetone								
253	V	2-Butanone								
254	V	Carbon disulfide								
255	V	2-Hexanone								
256	V	4-Methyl-2-pentanone								
257	V	Vinyl acetate								
289	V	Xylenes (Total)								
299	V	1,2-Dichloroethene(Total)								

COLLIERVILLE SITE: RESULTS OF FIRST QUARTER GROUNDWATER SAMPLING EVENT: FEBRUARY 19–21, 1991

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	02219113	02219113 D	02219114	02219114 D
		LAB SAMPLE ID	02219113	02219113 D	02219114	02219114 D
		SAMPLING DATE	02/21/91	02/21/91	02/21/91	02/21/91
		MATRIX	WATER	WATER	WATER	WATER
CMP	CL	COMPOUND	ug/kg	ug/kg	ug/l	ug/l
101	M	Antimony				
102	M	Arsenic				
103	M	Beryllium	BDL 10	BDL 10	BDL 10	BDL 10
104	M	Cadmium				
105	M	Chromium	BDL 10	BDL 10	11	BDL 10
106	M	Copper	BDL 10	BDL 10	BDL 10	BDL 10
107	M	Lead	BDL 100	BDL 100	BDL 100	BDL 100
108	M	Mercury				
109	M	Nickel	65	132	91	98
110	M	Selenium				
111	M	Silver	BDL 50	BDL 50	BDL 50	BDL 50
112	M	Thallium				
113	M	Zinc	25	21	BDL 10	11
114	M	Barium	BDL 50	62	BDL 50	BDL 50
115	M	Iron	28	38	235	60
116	M	Manganese	BDL 10	BDL 10	BDL 10	BDL 10
117	M	Vanadium	BDL 10	BDL 10	BDL 10	BDL 10
118	M	Aluminum	21	41	41	22
120	M	Cobalt	BDL 20	BDL 20	BDL 20	BDL 20
121	M	Magnesium	852	1750	1990	2020
129	M	Calcium	2180	4740	6040	6190
130	M	Sodium	27600	61400	22400	21900
131	M	Potassium	314	697	757	809
203	V	Benzene	BDL 5			
205	V	Bromoform	BDL 5			
206	V	Carbon tetrachloride	BDL 5			
207	V	Chlorobenzene	BDL 5			
208	V	Dibromochloromethane	BDL 5			
209	V	Chloroethane	BDL 10			
211	V	Chloroform	BDL 5			
212	V	Bromodichloromethane	BDL 5			
214	V	1,1-Dichloroethane	BDL 5			
215	V	1,2-Dichloroethane	BDL 5			
216	V	1,1-Dichloroethene	BDL 5			
217	V	1,2-Dichloropropane	BDL 5			
218	V	Cis-1,3-Dichloropropene	BDL 5			
219	V	Ethylbenzene	BDL 5			
220	V	Bromomethane	BDL 10			
221	V	Chloromethane	BDL 10			
222	V	Methylene chloride	BDL 5			
223	V	1,1,2,2-Tetrachloroethane	BDL 5			
224	V	Tetrachloroethene	BDL 5			
225	V	Toluene	BDL 5			
227	V	1,1,1-Trichloroethane	BDL 5			
228	V	1,1,2-Trichloroethane	BDL 5			
229	V	Trichloroethene	127			
231	V	Vinyl chloride	BDL 10			
250	V	Trans-1,3-Dichloropropene	BDL 5			
251	V	Styrene	BDL 5			
252	V	Acetone	7.2 J			
253	V	2-Butanone	BDL 10			
254	V	Carbon disulfide	BDL 5			
255	V	2-Hexanone	BDL 10			
256	V	4-Methyl-2-pentanone	BDL 10			
257	V	Vinyl acetate	BDL 10			
289	V	Xylenes (Total)	BDL 5			
299	V	1,2-Dichloroethene(Total)	BDL 5			

COLLIERVILLE SITE: RESULTS OF FIRST QUARTER GROUNDWATER SAMPLING EVENT: FEBRUARY 19-21, 1991

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	02219116	02219116 D	02219119	02219119 D
		LAB SAMPLE ID	02219116	02219116 D	02219119	02219119 D
		SAMPLING DATE	02/21/91	02/21/91	02/21/91	02/21/91
		MATRIX	WATER	WATER	WATER	WATER
CMP	CL	COMPOUND	ug/l	ug/l	ug/l	ug/l
101	M	Antimony			BDL 0.5	BDL 0.5
102	M	Arsenic			BDL 1	1.1 B
103	M	Beryllium	BDL 10	BDL 10	2 B	BDL 1.4
104	M	Cadmium			BDL 3.3	BDL 3.3
105	M	Chromium	BDL 10	BDL 10	BDL 9.4	BDL 9.4
106	M	Copper	BDL 10	BDL 10	8 B	7 B
107	M	Lead	BDL 100	BDL 100	35.5	3
108	M	Mercury			BDL 0.2	BDL 0.2
109	M	Nickel	75	70	BDL 10.6	BDL 10.6
110	M	Selenium			BDL 0.5	BDL 0.5
111	M	Silver	BDL 50		BDL 6.8	BDL 6.8
112	M	Thallium			BDL 0.6	BDL 0.6
113	M	Zinc	4200	4200	30500	7450
114	M	Barium	BDL 50	BDL 50	307	252
115	M	Iron	636	208	21200	235
116	M	Manganese	37	33	1220	1180
117	M	Vanadium	BDL 10	BDL 10	BDL 7.7	BDL 7.7
118	M	Aluminum	361	124	816	BDL 95.6
120	M	Cobalt	BDL 20	BDL 20	BDL 7.9	BDL 7.9
121	M	Magnesium	1030	976	10200	12700
129	M	Calcium	3550	3510	40700	40300
130	M	Sodium	13200	13900	42600	44000
131	M	Potassium	596	684	2120 B	1450 B
203	V	Benzene			BDL 500	
205	V	Bromoform			BDL 500	
206	V	Carbon tetrachloride			BDL 500	
207	V	Chlorobenzene			BDL 500	
208	V	Dibromochloromethane			BDL 500	
209	V	Chloroethane			BDL 1000	
211	V	Chloroform			BDL 500	
212	V	Bromodichloromethane			BDL 500	
214	V	1,1-Dichloroethane			BDL 500	
215	V	1,2-Dichloroethane			BDL 500	
216	V	1,1-Dichloroethene			BDL 500	
217	V	1,2-Dichloropropane			BDL 500	
218	V	Cis-1,3-Dichloropropene			BDL 500	
219	V	Ethylbenzene			BDL 500	
220	V	Bromomethane			BDL 1000	
221	V	Chloromethane			BDL 100	
222	V	Methylene chloride			BDL 500	
223	V	1,1,2,2-Tetrachloroethane			BDL 500	
224	V	Tetrachloroethene			BDL 500	
225	V	Toluene			BDL 500	
227	V	1,1,1-Trichloroethane			BDL 500	
228	V	1,1,2-Trichloroethane			BDL 500	
229	V	Trichloroethene			7700	
231	V	Vinyl chloride			BDL 1000	
250	V	Trans-1,3-Dichloropropene			BDL 500	
251	V	Styrene			BDL 500	
252	V	Acetone			BDL 1000	
253	V	2-Butanone			BDL 1000	
254	V	Carbon disulfide			BDL 500	
255	V	2-Hexanone			BDL 1000	
256	V	4-Methyl-2-pentanone			BDL 1000	
257	V	Vinyl acetate			BDL 1000	
289	V	Xylenes (Total)			BDL 500	
299	V	1,2-Dichloroethene(Total)			12000	

		SITE	COLLIERVILLE		COLLIERVILLE	
		SAMPLE ID	02219123		02219123 D	
		LAB SAMPLE ID	02219123		02219123 D	
		SAMPLING DATE	02/19/91		02/19/91	
		MATRIX	WATER		WATER	
CMP	CL	COMPOUND	ug/l		ug/l	
101	M	Antimony				
102	M	Arsenic				
103	M	Beryllium	BDL	10	BDL	10
104	M	Cadmium				
105	M	Chromium	16		BDL	10
106	M	Copper	BDL	10	BDL	10
107	M	Lead	BDL	100	BDL	100
108	M	Mercury				
109	M	Nickel	159		95	
110	M	Selenium				
111	M	Silver	BDL	50	BDL	50
112	M	Thallium				
113	M	Zinc	11300		8200	
114	M	Barium	134		125	
115	M	Iron	33800		498	
116	M	Manganese	415		400	
117	M	Vanadium	BDL	10	BDL	10
118	M	Aluminum	3210		24	
120	M	Cobalt	BDL	20	BDL	20
121	M	Magnesium	2240		2370	
129	M	Calcium	8160		9390	
130	M	Sodium	53700		60700	
131	M	Potassium	1320		1130	
203	V	Benzene	BDL	5		
205	V	Bromoform	BDL	5		
206	V	Carbon tetrachloride	BDL	5		
207	V	Chlorobenzene	BDL	5		
208	V	Dibromochloromethane	BDL	5		
209	V	Chloroethane	BDL	10		
211	V	Chloroform	BDL	5		
212	V	Bromodichloromethane	BDL	5		
214	V	1,1-Dichloroethane	BDL	5		
215	V	1,2-Dichloroethane	BDL	5		
216	V	1,1-Dichloroethene	BDL	5		
217	V	1,2-Dichloropropane	BDL	5		
218	V	Cis-1,3-Dichloropropene	BDL	5		
219	V	Ethylbenzene	BDL	5		
220	V	Bromomethane	BDL	10		
221	V	Chloromethane	BDL	10		
222	V	Methylene chloride	BDL	5		
223	V	1,1,2,2-Tetrachloroethane	BDL	5		
224	V	Tetrachloroethene	BDL	5		
225	V	Toluene	BDL	5		
227	V	1,1,1-Trichloroethane	BDL	5		
228	V	1,1,2-Trichloroethane	BDL	5		
229	V	Trichloroethene	59			
231	V	Vinyl chloride	BDL	10		
250	V	Trans-1,3-Dichloropropene	BDL	5		
251	V	Styrene	BDL	5		
252	V	Acetone	14			
253	V	2-Butanone	BDL	100		
254	V	Carbon disulfide	11			
255	V	2-Hexanone	BDL	50		
256	V	4-Methyl-2-pentanone	BDL	50		
257	V	Vinyl acetate	BDL	10		
289	V	Xylenes (Total)	BDL	5		
299	V	1,2-Dichloroethene(Total)	11			

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	02209127	02209127D	02209129	02209129D	022191-31
		LAB SAMPLE ID	02209127	02209127D	02209129	02209129D	022191-31
		SAMPLING DATE	02/20/91	02/20/91	02/20/91	02/20/91	02/21/91
		MATRIX	WATER	WATER	WATER	WATER	WATER
CMP	CL	COMPOUND	ug/l	ug/l	ug/l	ug/l	ug/l
101	M	Antimony	BDL 0.5	BDL 0.5	0.5 B	BDL 0.5	BDL 0.5
102	M	Arsenic	2 B	BDL 1	BDL 1	BDL 1	BDL 1
103	M	Beryllium	BDL 1.4	BDL 1.4	BDL 1.4	BDL 1.4	BDL 1.4
104	M	Cadmium	BDL 3.3	BDL 3.3	5	9	BDL 3.3
105	M	Chromium	BDL 9.4	BDL 9.4	16	BDL 9.4	14
106	M	Copper	19 B	6 B	65	16 B	BDL 5.8
107	M	Lead	8.4	2.4 B	67	5.7	2.7 B
108	M	Mercury	BDL 0.2	BDL 0.2	BDL 0.2	BDL 0.2	BDL 0.2
109	M	Nickel	15 B	16 B	26 B	44	BDL 10.6
110	M	Selenium	0.9 B	1.1 B	BDL 0.5	BDL 0.5	BDL 0.5
111	M	Silver	BDL 6.8	BDL 6.8	BDL 6.8	BDL 6.8	BDL 6.8
112	M	Thallium	BDL 0.6	BDL 0.6	0.6 B	BDL 0.6	BDL 0.6
113	M	Zinc	1220	3770	16500	10300	731
114	M	Barium	66 B	54 B	47 B	42 B	BDL 31.3
115	M	Iron	5200	246	7530	938	5930
116	M	Manganese	123	116	136	79	55
117	M	Vanadium	BDL 7.7	BDL 7.7	10 B	10 B	BDL 7.7
118	M	Aluminum	2520	BDL 95.6	2750	754	434
120	M	Cobalt	BDL 7.9	BDL 7.9	BDL 7.9	BDL 7.9	BDL 7.9
121	M	Magnesium	4740 B	4850 B	2150 B	2600 B	1220 B
129	M	Calcium	19000	19300	9660	8410	2970 B
130	M	Sodium	63300	62700	15700	14500	20300
131	M	Potassium	2300 B	1810 B	2220 B	1630 B	BDL 1120
203	V	Benzene	BDL 5		BDL 5		BDL 50
205	V	Bromoform	BDL 5		BDL 5		BDL 50
206	V	Carbon tetrachloride	BDL 5		BDL 5		BDL 50
207	V	Chlorobenzene	BDL 5		BDL 5		BDL 50
208	V	Dibromochloromethane	BDL 5		BDL 5		BDL 50
209	V	Chloroethane	BDL 10		BDL 10		BDL 100
211	V	Chloroform	BDL 5		BDL 5		BDL 50
212	V	Bromodichloromethane	BDL 5		BDL 5		BDL 50
214	V	1,1-Dichloroethane	BDL 5		BDL 5		BDL 50
215	V	1,2-Dichloroethane	BDL 5		BDL 5		BDL 50
216	V	1,1-Dichloroethene	BDL 5		BDL 5		BDL 50
217	V	1,2-Dichloropropane	BDL 5		BDL 5		BDL 50
218	V	Cis-1,3-Dichloropropene	BDL 5		BDL 5		BDL 50
219	V	Ethylbenzene	BDL 5		BDL 5		BDL 50
220	V	Bromomethane	BDL 10		BDL 10		BDL 100
221	V	Chloromethane	BDL 10		BDL 10		BDL 100
222	V	Methylene chloride	BDL 5		BDL 5		27 J
223	V	1,1,2,2-Tetrachloroethane	BDL 5		BDL 5		BDL 50
224	V	Tetrachloroethene	BDL 5		BDL 5		BDL 50
225	V	Toluene	BDL 5		BDL 5		BDL 50
227	V	1,1,1-Trichloroethane	BDL 5		BDL 5		BDL 50
228	V	1,1,2-Trichloroethane	BDL 5		BDL 5		BDL 50
229	V	Trichloroethene	BDL 5		BDL 5		1100
231	V	Vinyl chloride	BDL 10		BDL 10		BDL 100
250	V	Trans-1,3-Dichloropropene	BDL 5		BDL 5		BDL 50
251	V	Styrene	BDL 5		BDL 5		BDL 50
252	V	Acetone	11		BDL 10		BDL 100
253	V	2-Butanone	BDL 10		BDL 10		BDL 100
254	V	Carbon disulfide	BDL 5		BDL 5		BDL 50
255	V	2-Hexanone	BDL 10		BDL 10		BDL 100
256	V	4-Methyl-2-pentanone	BDL 10		BDL 10		BDL 100
257	V	Vinyl acetate	BDL 10		BDL 10		BDL 100
289	V	Xylenes (Total)	BDL 5		BDL 5		BDL 50
299	V	1,2-Dichloroethene(Total)	BDL 5		BDL 5		260

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	022191-31D	02189133	02189133D	022191-35	022191-35D
		LAB SAMPLE ID	022191-31D	02189133	02189133D	022191-35	022191-35D
		SAMPLING DATE	02/21/91	02/18/91	02/18/91	02/21/91	02/21/91
		MATRIX	WATER	WATER	WATER	WATER	WATER
CMP	CL	COMPOUND	ug/l	ug/l	ug/l	ug/l	ug/l
101	M	Antimony	1.3 B	BDL 0.5	BDL 0.5	BDL 0.5	1.7 B
102	M	Arsenic	BDL 1	BDL 1	BDL 1	BDL 1	BDL 1
103	M	Beryllium	BDL 1.4	123	BDL 1.4	BDL 1.4	BDL 1.4
104	M	Cadmium	BDL 3.3	42	BDL 3.3	BDL 3.3	BDL 3.3
105	M	Chromium	BDL 9.4	327	BDL 9.4	BDL 9.4	BDL 9.4
106	M	Copper	BDL 5.8	207	6 B	21 B	9 B
107	M	Lead	1.8 B	62	3.8	4.9	1.7 B
108	M	Mercury	BDL 0.2	4.4	BDL 0.2	BDL 0.2	BDL 0.2
109	M	Nickel	BDL 10.6	214	BDL 10.6	15 B	19 B
110	M	Selenium	BDL 0.5	BDL 0.5	2.7 B	BDL 0.5	BDL 0.5
111	M	Silver	BDL 6.8	BDL 6.8	BDL 6.8	BDL 6.8	BDL 6.8
112	M	Thallium	BDL 0.6	1 B	BDL 0.6	BDL 0.6	BDL 0.6
113	M	Zinc	566	1080	65	835	739
114	M	Barium	BDL 31.3	791	44 B	42 B	44 B
115	M	Iron	1660	996000	182	1990	206
116	M	Manganese	39	11400	178	183	193
117	M	Vanadium	8 B	494	BDL 7.7	BDL 7.7	BDL 7.7
118	M	Aluminum	170 B	144000	BDL 95.6	257	BDL 95.6
120	M	Cobalt	BDL 7.9	436	BDL 7.9	8 B	BDL 7.9
121	M	Magnesium	2130 B	11200	5280	2170 B	2130 B
129	M	Calcium	8560	23100	12900	7140	7500
130	M	Sodium	24400	26500	25100	24900	24900
131	M	Potassium	1480 B	5380	BDL 1120	8220	9420
203	V	Benzene		BDL 5		BDL 5	
205	V	Bromoform		BDL 5		BDL 5	
206	V	Carbon tetrachloride		BDL 5		BDL 5	
207	V	Chlorobenzene		BDL 5		BDL 5	
208	V	Dibromochloromethane		BDL 5		BDL 5	
209	V	Chloroethane		BDL 10		BDL 10	
211	V	Chloroform		BDL 5		BDL 5	
212	V	Bromodichloromethane		BDL 5		BDL 5	
214	V	1,1-Dichloroethane		BDL 5		BDL 5	
215	V	1,2-Dichloroethane		BDL 5		BDL 5	
216	V	1,1-Dichloroethene		BDL 5		BDL 5	
217	V	1,2-Dichloropropane		BDL 5		BDL 5	
218	V	Cis-1,3-Dichloropropene		BDL 5		BDL 5	
219	V	Ethylbenzene		BDL 5		BDL 5	
220	V	Bromomethane		BDL 10		BDL 10	
221	V	Chloromethane		BDL 10		BDL 10	
222	V	Methylene chloride		BDL 5		BDL 5	
223	V	1,1,2,2-Tetrachloroethane		BDL 5		BDL 5	
224	V	Tetrachloroethene		BDL 5		BDL 5	
225	V	Toluene		BDL 5		BDL 5	
227	V	1,1,1-Trichloroethane		BDL 5		BDL 5	
228	V	1,1,2-Trichloroethane		BDL 5		BDL 5	
229	V	Trichloroethene		BDL 5		BDL 5	
231	V	Vinyl chloride		BDL 10		BDL 10	
250	V	Trans-1,3-Dichloropropene		BDL 5		BDL 5	
251	V	Styrene		BDL 5		BDL 5	
252	V	Acetone		9 J		BDL 10	
253	V	2-Butanone		BDL 10		BDL 10	
254	V	Carbon disulfide		BDL 5		BDL 5	
255	V	2-Hexanone		BDL 10		BDL 10	
256	V	4-Methyl-2-pentanone		BDL 10		BDL 10	
257	V	Vinyl acetate		BDL 10		BDL 10	
289	V	Xylenes (Total)		BDL 5		BDL 5	
299	V	1,2-Dichloroethene(Total)		BDL 5		BDL 5	

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	02189137	02189137D	02199139	02199139D
		LAB SAMPLE ID	02189137	02189137D	02199139	02199139D
		SAMPLING DATE	02/18/91	02/18/91	02/19/91	02/19/91
		MATRIX	WATER	WATER	WATER	WATER
CMP	CL	COMPOUND	ug/l	ug/l	ug/l	ug/l
101	M	Antimony	BDL 0.5	BDL 0.5	BDL 0.5	BDL 0.5
102	M	Arsenic	BDL 1	BDL 1	BDL 1	BDL 1
103	M	Beryllium	10	BDL 1.4	11	BDL 1.4
104	M	Cadmium	4 B	BDL 3.3	BDL 3.3	BDL 3.3
105	M	Chromium	85	BDL 9.4	48	BDL 9.4
106	M	Copper	37	9 B	63	8 B
107	M	Lead	7.8	1.8 B	34.8	2.1 B
108	M	Mercury	0.29	BDL 0.2	BDL 0.2	BDL 0.2
109	M	Nickel	46	BDL 10.6	75	28 B
110	M	Selenium	BDL 0.5	BDL 0.5	0.5 B	BDL 0.5
111	M	Silver	BDL 6.8	BDL 6.8	BDL 6.8	BDL 6.8
112	M	Thallium	BDL 0.6	BDL 0.6	BDL 0.6	BDL 0.6
113	M	Zinc	564	56	7040	4080
114	M	Barium	333	239	310	231
115	M	Iron	68900	210	81800	313
116	M	Manganese	673	251	734	630
117	M	Vanadium	77	BDL 7.7	43 B	BDL 7.7
118	M	Aluminum	16800	BDL 95.6	8030	99 B
120	M	Cobalt	19 B	BDL 7.9	8 B	8 B
121	M	Magnesium	14000	11400	9740	10000
129	M	Calcium	22000	19200	23500	24900
130	M	Sodium	54800	55100	55400	54600
131	M	Potassium	21300	19000	8210	7530
203	V	Benzene	BDL 5		BDL 250	
205	V	Bromoform	BDL 5		BDL 250	
206	V	Carbon tetrachloride	BDL 5		BDL 250	
207	V	Chlorobenzene	BDL 5		BDL 250	
208	V	Dibromochloromethane	BDL 5		BDL 250	
209	V	Chloroethane	BDL 10		BDL 500	
211	V	Chloroform	BDL 5		BDL 250	
212	V	Bromodichloromethane	BDL 5		BDL 250	
214	V	1,1-Dichloroethane	BDL 5		BDL 250	
215	V	1,2-Dichloroethane	BDL 5		BDL 250	
216	V	1,1-Dichloroethene	BDL 5		BDL 250	
217	V	1,2-Dichloropropane	BDL 5		BDL 250	
218	V	Cis-1,3-Dichloropropene	BDL 5		BDL 250	
219	V	Ethylbenzene	BDL 5		BDL 250	
220	V	Bromomethane	BDL 10		BDL 500	
221	V	Chloromethane	BDL 10		BDL 500	
222	V	Methylene chloride	BDL 5		BDL 250	
223	V	1,1,2,2-Tetrachloroethane	BDL 5		BDL 250	
224	V	Tetrachloroethene	BDL 5		BDL 250	
225	V	Toluene	BDL 5		BDL 250	
227	V	1,1,1-Trichloroethane	BDL 5		BDL 250	
228	V	1,1,2-Trichloroethane	BDL 5		BDL 250	
229	V	Trichloroethene	680 E		4400	
231	V	Vinyl chloride	BDL 10		BDL 500	
250	V	Trans-1,3-Dichloropropene	BDL 5		BDL 250	
251	V	Styrene	BDL 5		BDL 250	
252	V	Acetone	BDL 10		BDL 500	
253	V	2-Butanone	BDL 10		BDL 500	
254	V	Carbon disulfide	BDL 5		BDL 250	
255	V	2-Hexanone	BDL 10		BDL 500	
256	V	4-Methyl-2-pentanone	BDL 10		BDL 500	
257	V	Vinyl acetate	BDL 10		BDL 500	
289	V	Xylenes (Total)	BDL 5		BDL 250	
299	V	1,2-Dichloroethene(Total)	36		BDL 250	

METHOD 8010 RESULTS

		SITE	COLLIERVILLE	COLLIERVILL	COLLIERVILLE	COLLIERVILL	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	02199101	02199101B	02219103	02209104	02199105	02219106
		LAB SAMPLE ID	02199101	02199101B	02219103	02209104	02199105	02219106
		SAMPLING DATE	02/19/91	02/19/91	02/21/91	02/19/91	02/19/91	02/21/91
		MATRIX	WATER	WATER	WATER	WATER	WATER	WATER
CMP	CL	COMPOUND	ug/l	ug/l	ug/l	ug/kg	ug/l	ug/l
203	V	Benzene						
205	V	Bromoform						ND
206	V	Carbon tetrachloride						ND
207	V	Chlorobenzene						ND
208	V	Dibromochloromethane						ND
209	V	Chloroethane						ND
211	V	Chloroform						ND
212	V	Bromodichloromethane						ND
214	V	1,1-Dichloroethane						ND
215	V	1,2-Dichloroethane						ND
216	V	1,1-Dichloroethene						
217	V	1,2-Dichloropropane						ND
218	V	Cis-1,3-Dichloropropene						ND
219	V	Ethylbenzene						
220	V	Bromomethane						ND
221	V	Chloromethane						ND
222	V	Methylene chloride						ND
223	V	1,1,2,2-Tetrachloroethane						ND
224	V	Tetrachloroethene						ND
225	V	Toluene						
227	V	1,1,1-Trichloroethane						ND
228	V	1,1,2-Trichloroethane						ND
229	V	Trichloroethene						1.4
231	V	Vinyl chloride						ND
250	V	Trans-1,3-Dichloropropene						ND
251	V	Styrene						
252	V	Acetone						
253	V	2-Butanone						
254	V	Carbon disulfide						
255	V	2-Hexanone						
256	V	4-Methyl-2-pentanone						
257	V	Vinyl acetate						
289	V	Xylenes (Total)						
299	V	1,2-Dichloroethene(Total)						
	V	Trihlorodifluoromethane						ND
	V	1,1-Dichloroethylene						ND
	V	2-Chloroethylvinylether						ND
	V	1,3-Dichlorobenzene						ND
	V	1,2-Dichlorobenzene						ND
	V	1,4-Dichlorobenzene						ND

*ND - Not detected at or above the method detection limit of 1.0

METHOD 8010 RESULTS

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	02209110	02219112	02219113	02219114
		LAB SAMPLE ID	02209110	02219112	02219113	02219114
		SAMPLING DATE	02/19/91	02/21/91	02/21/91	02/21/91
		MATRIX	WATER	WATER	WATER	WATER
CMP	CL	COMPOUND	ug/l	ug/l	ug/kg	ug/l
203	V	Benzene				
205	V	Bromoform		ND		ND
206	V	Carbon tetrachloride		ND		ND
207	V	Chlorobenzene		ND		ND
208	V	Dibromochloromethane		ND		ND
209	V	Chloroethane		ND		ND
211	V	Chloroform		ND		ND
212	V	Bromodichloromethane		ND		ND
214	V	1,1-Dichloroethane		ND		ND
215	V	1,2-Dichloroethane		ND		ND
216	V	1,1-Dichloroethene				
217	V	1,2-Dichloropropane		ND		ND
218	V	Cis-1,3-Dichloropropene		ND		ND
219	V	Ethylbenzene				
220	V	Bromomethane		ND		ND
221	V	Chloromethane		ND		ND
222	V	Methylene chloride		ND		ND
223	V	1,1,2,2-Tetrachloroethane		ND		ND
224	V	Tetrachloroethene		ND		ND
225	V	Toluene				
227	V	1,1,1-Trichloroethane		ND		ND
228	V	1,1,2-Trichloroethane		ND		ND
229	V	Trichloroethene		1.1		ND
231	V	Vinyl chloride		ND		ND
250	V	Trans-1,3-Dichloropropene		ND		ND
251	V	Styrene				
252	V	Acetone				
253	V	2-Butanone				
254	V	Carbon disulfide				
255	V	2-Hexanone				
256	V	4-Methyl-2-pentanone				
257	V	Vinyl acetate				
289	V	Xylenes (Total)				
299	V	1,2-Dichloroethene(Total)				
	V	Trihlorodifluoromethane		ND		ND
	V	1,1-Dichloroethylene		ND		ND
	V	2-Chloroethylvinylether		ND		ND
	V	1,3-Dichlorobenzene		ND		ND
	V	1,2-Dichlorobenzene		ND		ND
	V	1,4-Dichlorobenzene		ND		ND

METHOD 8010 RESULTS

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	02219116	02219119	02219123
		LAB SAMPLE ID	02219116	02219119	02219123
		SAMPLING DATE	02/21/91	02/21/91	02/21/91
		MATRIX	WATER	WATER	WATER
CMP	CL	COMPOUND	ug/l	ug/l	ug/l
203	V	Benzene			
205	V	Bromoform	ND		
206	V	Carbon tetrachloride	ND		
207	V	Chlorobenzene	ND		
208	V	Dibromochloromethane	ND		
209	V	Chloroethane	ND		
211	V	Chloroform	ND		
212	V	Bromodichloromethane	ND		
214	V	1,1-Dichloroethane	ND		
215	V	1,2-Dichloroethane	ND		
216	V	1,1-Dichloroethene			
217	V	1,2-Dichloropropane	ND		
218	V	Cis-1,3-Dichloropropene	ND		
219	V	Ethylbenzene			
220	V	Bromomethane	ND		
221	V	Chloromethane	ND		
222	V	Methylene chloride	ND		
223	V	1,1,2,2-Tetrachloroethane	ND		
224	V	Tetrachloroethene	ND		
225	V	Toluene			
227	V	1,1,1-Trichloroethane	ND		
228	V	1,1,2-Trichloroethane	ND		
229	V	Trichloroethene	ND		
231	V	Vinyl chloride	ND		
250	V	Trans-1,3-Dichloropropene	ND		
251	V	Styrene			
252	V	Acetone			
253	V	2-Butanone			
254	V	Carbon disulfide			
255	V	2-Hexanone			
256	V	4-Methyl-2-pentanone			
257	V	Vinyl acetate			
289	V	Xylenes (Total)			
299	V	1,2-Dichloroethene(Total)			
	V	Trihlorodifluoromethane	ND		
	V	1,1-Dichloroethylene	ND		
	V	2-Chloroethylvinylether	ND		
	V	1,3-Dichlorobenzene	ND		
	V	1,2-Dichlorobenzene	ND		
	V	1,4-Dichlorobenzene	ND		

METHOD 8010 RESULTS

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	02209127	02209129	02219131	02189133	02199135
		SAMPLING DATE	02/20/91	02/20/91	02/21/91	02/18/91	02/21/91
		MATRIX	WATER	WATER	WATER	WATER	WATER
CMP	CL	COMPOUND	ug/l	ug/l	ug/l	ug/kg	ug/l
203	V	Benzene					
205	V	Bromoform			ND		ND
206	V	Carbon tetrachloride			ND		ND
207	V	Chlorobenzene			ND		ND
208	V	Dibromochloromethane			ND		ND
209	V	Chloroethane			ND		ND
211	V	Chloroform			ND		ND
212	V	Bromodichloromethane			ND		ND
214	V	1,1-Dichloroethane			ND		ND
215	V	1,2-Dichloroethane			ND		ND
216	V	1,1-Dichloroethene					
217	V	1,2-Dichloropropane			ND		ND
218	V	Cis-1,3-Dichloropropene			ND		ND
219	V	Ethylbenzene					
220	V	Bromomethane			ND		ND
221	V	Chloromethane			ND		ND
222	V	Methylene chloride			ND		ND
223	V	1,1,2,2-Tetrachloroethane			ND		ND
224	V	Tetrachloroethene			ND		ND
225	V	Toluene					
227	V	1,1,1-Trichloroethane			ND		ND
228	V	1,1,2-Trichloroethane			ND		ND
229	V	Trichloroethene			ND		ND
231	V	Vinyl chloride			ND		ND
250	V	Trans-1,3-Dichloropropene			ND		ND
251	V	Styrene					
252	V	Acetone					
253	V	2-Butanone					
254	V	Carbon disulfide					
255	V	2-Hexanone					
256	V	4-Methyl-2-pentanone					
257	V	Vinyl acetate					
289	V	Xylenes (Total)					
299	V	1,2-Dichloroethene(Total)					
	V	Trihlorodifluoromethane			ND		ND
	V	1,1-Dichloroethylene			ND		ND
	V	2-Chloroethylvinylether			ND		ND
	V	1,3-Dichlorobenzene			ND		ND
	V	1,2-Dichlorobenzene			ND		ND
	V	1,4-Dichlorobenzene			ND		ND

*ND - Not detected at or above the method detection limit of 1.0

*ND - Not detected at or above the method detection limit of 1.0

METHOD 8010

		SITE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	02189137	02199139
		SAMPLING DATE	02/18/91	02/19/91
		MATRIX	WATER	WATER
CMP	CL	COMPOUND	ug/l	ug/kg
203	V	Benzene		
205	V	Bromoform		
206	V	Carbon tetrachloride		
207	V	Chlorobenzene		
208	V	Dibromochloromethane		
209	V	Chloroethane		
211	V	Chloroform		
212	V	Bromodichloromethane		
214	V	1,1-Dichloroethane		
215	V	1,2-Dichloroethane		
216	V	1,1-Dichloroethene		
217	V	1,2-Dichloropropane		
218	V	Cis-1,3-Dichloropropene		
219	V	Ethylbenzene		
220	V	Bromomethane		
221	V	Chloromethane		
222	V	Methylene chloride		
223	V	1,1,2,2-Tetrachloroethane		
224	V	Tetrachloroethene		
225	V	Toluene		
227	V	1,1,1-Trichloroethane		
228	V	1,1,2-Trichloroethane		
229	V	Trichloroethene		
231	V	Vinyl chloride		
250	V	Trans-1,3-Dichloropropene		
251	V	Styrene		
252	V	Acetone		
253	V	2-Butanone		
254	V	Carbon disulfide		
255	V	2-Hexanone		
256	V	4-Methyl-2-pentanone		
257	V	Vinyl acetate		
289	V	Xylenes (Total)		
299	V	1,2-Dichloroethene(Total)		
	V	Trihlorodifluoromethane		
	V	1,1-Dichloroethylene		
	V	2-Chloroethylvinylether		
	V	1,3-Dichlorobenzene		
	V	1,2-Dichlorobenzene		
	V	1,4-Dichlorobenzene		

COLLIERVILLE SITE: RESULTS OF THIRD QUARTER GROUNDWATER SAMPLING EVENT: Feb. 1991

EPA SAMPLES

		SITE	COLLIERVILLE		COLLIERVILLE		COLLIERVILLE	
		SAMPLE ID	02219107		02219107A		02219107B	
		LAB SAMPLE ID	1322.0		1323.8		1324.0	
		SAMPLING DATE	02/21/91		02/21/91		02/21/91	
		MATRIX	WATER		WATER		WATER	
CMP	CL	COMPOUND	ug/l		ug/l		ug/l	
101	M	Antimony	BDL	0.5	BDL	0.5	102 B	
102	M	Arsenic	BDL	1	BDL	1	13.9	
103	M	Beryllium	12		BDL	1.4	7	
104	M	Cadmium	BDL	3.3	BDL	3.3	11	
105	M	Chromium	BDL	9.4	BDL	9.4	12	
106	M	Copper	BDL	5.8	BDL	5.8	33	
107	M	Lead	1.1 B		0.8 B		9.7	
108	M	Mercury	BDL	0.2	BDL	0.2	1	
109	M	Nickel	BDL	10.6	BDL	10.6	93	
110	M	Selenium	BDL	0.5	BDL	0.5	12.4	
111	M	Silver	BDL	6.8	BDL	6.8	BDL	6.8
112	M	Thallium	BDL	0.6	BDL	0.6	8.5 B	
113	M	Zinc	23		28		44	
114	M	Barium	BDL	31.3	BDL	31.3	87 B	
115	M	Iron	93000		1150		735	
116	M	Manganese	17		BDL	3	26	
117	M	Vanadium	BDL	7.7	BDL	7.7	126	
118	M	Aluminum	93600		1100		932	
120	M	Cobalt	BDL	7.9	BDL	7.9	48 B	
121	M	Magnesium	BDL	204	BDL	204	662 B	
129	M	Calcium	BDL	565	BDL	565	BDL	565
130	M	Sodium	BDL	780	BDL	780	BDL	780
131	M	Potassium	BDL	1120	BDL	1120	BDL	1120
203	V	Benzene	BDL	5	BDL	5		
205	V	Bromoform	BDL	5	BDL	5		
206	V	Carbon tetrachloride	BDL	5	BDL	5		
207	V	Chlorobenzene	BDL	5	BDL	5		
208	V	Dibromochloromethane	48		BDL	5		
209	V	Chloroethane	BDL	10	BDL	10		
211	V	Chloroform	BDL	5	BDL	5		
212	V	Bromodichloromethane	42		BDL	5		
214	V	1,1-Dichloroethane	BDL	5	BDL	5		
215	V	1,2-Dichloroethane	43		BDL	5		
216	V	1,1-Dichloroethene	BDL	5	BDL	5		
217	V	1,2-Dichloropropane	BDL	5	BDL	5		
218	V	Cis-1,3-Dichloropropene	37		BDL	5		
219	V	Ethylbenzene	BDL	5	BDL	5		
220	V	Bromomethane	BDL	10	BDL	10		
221	V	Chloromethane	BDL	10	BDL	10		
222	V	Methylene chloride	35		BDL	5		
223	V	1,1,2,2-Tetrachloroethane	BDL	5	BDL	5		
224	V	Tetrachloroethene	27		BDL	5		
225	V	Toluene	BDL	5	BDL	5		
227	V	1,1,1-Trichloroethane	32		BDL	5		
228	V	1,1,2-Trichloroethane	BDL	5	BDL	5		
229	V	Trichloroethene	BDL	5	BDL	5		
231	V	Vinyl chloride	BDL	10	BDL	10		
250	V	Trans-1,3-Dichloropropene	46		BDL	5		
251	V	Styrene	BDL	5	BDL	5		
252	V	Acetone	BDL	10	BDL	10		
253	V	2-Butanone	BDL	10	BDL	10		
254	V	Carbon disulfide	BDL	5	BDL	5		
255	V	2-Hexanone	BDL	10	BDL	10		
256	V	4-Methyl-2-pentanone	BDL	10	BDL	10		
257	V	Vinyl acetate	BDL	10	BDL	10		
289	V	Xylenes (Total)	BDL	5	BDL	5		
299	V	1,2-Dichloroethene(Total)	25		BDL	5		

*QA Samples

COLLIERVILLE SITE: RESULTS OF SECOND QUARTER GROUNDWATER SAMPLING EVENT; APRIL 23, 1991

		SITE	COLLIERVILLE			COLLIERVILLE		
		SAMPLE ID	042391-31			042391-27		
		LAB SAMPLE ID	2820			2821		
		SAMPLING DATE	04/23/91			04/23/91		
		MATRIX	WATER			WATER		
CMP	CL	COMPOUND	ug/l			ug/l		
101	M	Antimony	0.8	B		BDL		0.8
102	M	Arsenic	BDL		1	5.3	B	
103	M	Beryllium	10			8		
104	M	Cadmium	3	B		BDL		3
105	M	Chromium	59			51		
106	M	Copper	31			41		
107	M	Lead	66			23.3		
108	M	Mercury	BDL		0.2	BDL		0.2
109	M	Nickel	34	B		33	B	
110	M	Selenium	BDL		0.5	0.5	B	
111	M	Silver	BDL		8.1	BDL		8.1
112	M	Thallium	BDL		0.7	BDL		0.7
113	M	Zinc	14200			1690		
114	M	Barium	58	B		132	B	
115	M	Iron	65900			50200		
116	M	Manganese	319			279		
117	M	Vanadium	27	B		68		
118	M	Aluminum	5860			32000		
120	M	Cobalt	11	B		17	B	
121	M	Magnesium	1650	B		5430		
129	M	Calcium	7550			17500		
130	M	Sodium	22500			55800		
131	M	Potassium	1420	B		3460	B	
203	V	Benzene	BDL		5	BDL		5
205	V	Bromoform	BDL		5	BDL		5
206	V	Carbon tetrachloride	BDL		5	BDL		5
207	V	Chlorobenzene	BDL		5	BDL		5
208	V	Dibromochloromethane	BDL		5	BDL		5
209	V	Chloroethane	BDL		10	BDL		10
211	V	Chloroform	BDL		5	BDL		5
212	V	Bromodichloromethane	BDL		5	BDL		5
214	V	1,1-Dichloroethane	BDL		5	BDL		5
215	V	1,2-Dichloroethane	BDL		5	BDL		5
216	V	1,1-Dichloroethene	BDL		5	BDL		5
217	V	1,2-Dichloropropane	BDL		5	BDL		5
218	V	Cis-1,3-Dichloropropene	BDL		5	BDL		5
219	V	Ethylbenzene	BDL		5	BDL		5
220	V	Bromomethane	BDL		10	BDL		10
221	V	Chloromethane	BDL		10	BDL		10
222	V	Methylene chloride	BDL		5	BDL		5
223	V	1,1,2,2-Tetrachloroethane	BDL		5	BDL		5
224	V	Tetrachloroethene	BDL		5	BDL		5
225	V	Toluene	BDL		5	BDL		5
227	V	1,1,1-Trichloroethane	BDL		5	BDL		5
228	V	1,1,2-Trichloroethane	BDL		5	BDL		5
229	V	Trichloroethene	250	E		BDL		5
231	V	Vinyl chloride	BDL		10	BDL		10
250	V	Trans-1,3-Dichloropropene	BDL		5	BDL		5
251	V	Styrene	BDL		5	BDL		5
252	V	Acetone	15	B		10	BJ	
253	V	2-Butanone	BDL		10	BDL		10
254	V	Carbon disulfide	BDL		5	BDL		5
255	V	2-Hexanone	BDL		10	BDL		10
256	V	4-Methyl-2-pentanone	BDL		10	BDL		10
257	V	Vinyl acetate	BDL		10	BDL		10
289	V	Xylenes (Total)	BDL		5	BDL		5
299	V	1,2-Dichloroethene(Total)	52			BDL		5

APRIL/MAY 1991
Summary, Groundwater Sampling Methodologies

Well	01	8240, ICAP Metals
	01B	8240, ICAP Metals
	03	8240, ICAP
	04	8010, Acetone, ICAP
	05	8240, ICAP
	06	8010, Acetone, ICAP
	10	8010, Acetone, ICAP Metals
	07	CLP Volatiles, Metals (Total Only)
	07A	CLP Volatiles, Metals
	07B	CLP Metals
	12	8010, Acetone, ICAP
	13	8240, ICAP
	14	8010, Acetone, ICAP
	15	CLP Volatiles, & 8010
	16	8010, Acetone, ICAP
	19	CLP Volatiles, 8010, CLP Metals
	23	8240, ICAP
	23D	8240, ICAP
	27	CLP Volatiles, 8010, CLP Metals
	29	CLP Volatiles, 8010, CLP Metals
	31	CLP Volatiles, 8010, CLP Metals
	35	CLP Volatiles, 8010, CLP Metals
	37	CLP Volatiles, 8010, CLP Metals
	57	CLP Volatiles, 8010, CLP Metals
	59	CLP Volatiles, 8010, CLP Metals
	61	CLP Volatiles, 8010, CLP Metals

D - Dissolved Metals
DUP - Duplicate Sample
07 - EPA Submitted

This table represents those monitoring wells which produced sufficient groundwater for quarterly sampling and analyses.

		SITE	COLLIERVILLE		COLLIERVILLE		COLLIERVILLE		COLLIERVILLE		COLLIERVILLE	
		SAMPLE ID	04249107*		04249107A*		04249107B*		04309115		04309119	
		LAB SAMPLE ID	2862.6		2863.4		2864.2		3101			
		SAMPLING DATE	04/24/91		04/24/91		04/24/91		04/30/91		04/30/91	
		MATRIX	WATER		WATER		WATER		WATER		WATER	
CMP	CL	COMPOUND	ug/l		ug/l		ug/l		ug/l		ug/l	
101	M	Antimony	BDL	0.8	117	B	1.1	B			1.7	B
102	M	Arsenic	1.1	B	14.9		BDL	1				
103	M	Beryllium	BDL	1.1	8		6				BDL	1.1
104	M	Cadmium	BDL	3	14		BDL	3			BDL	3
105	M	Chromium	BDL	9.5	22		BDL	9.5			BDL	9.5
106	M	Copper	BDL	4.5	41		BDL	4.5			25	
107	M	Lead	BDL	0.5	10		0.8	B				
108	M	Mercury	BDL	0.2	0.98		BDL	0.2			BDL	0.2
109	M	Nickel	BDL	8.6	114		10	B			15	B
110	M	Selenium	BDL	0.5	11.6		BDL	0.5				
111	M	Silver	BDL	8.1	BDL	8.1	BDL	8.1			10	
112	M	Thallium	BDL	0.7	8.3	B	BDL	0.7				
113	M	Zinc	45		65		50				16800	
114	M	Barium	BDL	12.5	100	B	BDL	12.5			264	
115	M	Iron	BDL	97.7	799		47200				3720	
116	M	Manganese	BDL	1.5	27		3	B			863	
117	M	Vanadium	8	B	139		BDL	4.2			BDL	4.2
118	M	Aluminum	BDL	195	948		46500				354	
120	M	Cobalt	BDL	6.4	45	B	BDL	6.4			BDL	6.4
121	M	Magnesium	BDL	509	624	B	BDL	509			11000	
129	M	Calcium	BDL	448	BDL	448	BDL	448			41800	
130	M	Sodium	BDL	390	BDL	390	BDL	390			44200	
131	M	Potassium	BDL	760	BDL	760	BDL	760			2630	B
203	V	Benzene	BDL	5	BDL	5			BDL	5	BDL	256
205	V	Bromoform	BDL	5	BDL	5			BDL	5	BDL	256
206	V	Carbon tetrachloride	BDL	5	BDL	5			BDL	5	BDL	256
207	V	Chlorobenzene	BDL	5	BDL	5			BDL	5	BDL	256
208	V	Dibromochloromethane	BDL	5	57				BDL	5	BDL	256
209	V	Chloroethane	BDL	10	BDL	10			BDL	10	BDL	263
211	V	Chloroform	BDL	5	BDL	5			BDL	5	BDL	256
212	V	Bromodichloromethane	BDL	5	55				BDL	5	BDL	256
214	V	1,1-Dichloroethane	BDL	5	BDL	5			BDL	5	BDL	256
215	V	1,2-Dichloroethane	BDL	5	54				BDL	5	BDL	256
216	V	1,1-Dichloroethene	BDL	5	BDL	5			BDL	5	BDL	256
217	V	1,2-Dichloropropane	BDL	5	BDL	5			BDL	5	BDL	256
218	V	Cis-1,3-Dichloropropene	BDL	5	37				BDL	5	BDL	256
219	V	Ethylbenzene	BDL	5	BDL	5			BDL	5	BDL	256
220	V	Bromomethane	BDL	10	BDL	10			BDL	10	BDL	263
221	V	Chloromethane	BDL	10	BDL	10			BDL	10	BDL	263
222	V	Methylene chloride	BDL	10	52	B			8		BDL	256
223	V	1,1,2,2-Tetrachloroethane	BDL	5	BDL	5			BDL	5	BDL	256
224	V	Tetrachloroethene	BDL	5	44				BDL	5	BDL	256
225	V	Toluene	BDL	5	BDL	5			BDL	5	BDL	256
227	V	1,1,1-Trichloroethane	BDL	5	44				BDL	5	BDL	256
228	V	1,1,2-Trichloroethane	BDL	5	BDL	5			BDL	5	BDL	256
229	V	Trichloroethene	BDL	5	BDL	5			160		2900	
231	V	Vinyl chloride	BDL	10	40				BDL	10	BDL	263
250	V	Trans-1,3-Dichloropropene	BDL	5	68				BDL	5	BDL	256
251	V	Styrene	BDL	5	BDL	5			BDL	5	BDL	256
252	V	Acetone	BDL	5	13	B			BDL	10	BDL	263
253	V	2-Butanone	BDL	10	BDL	10			BDL	10	BDL	263
254	V	Carbon disulfide	BDL	5	BDL	5			BDL	5	BDL	256
255	V	2-Hexanone	BDL	10	BDL	10			BDL	10	BDL	263
256	V	4-Methyl-2-pentanone	BDL	10	BDL	10			BDL	10	BDL	263
257	V	Vinyl acetate	BDL	10	BDL	10			BDL	10	BDL	263
289	V	Xylenes (Total)	BDL	5	BDL	5			BDL	5	BDL	256
299	V	1,2-Dichloroethene(Total)	BDL	5	39				BDL	5	5100	

*QA Samples

CMP	CL	COMPOUND	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		* SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	04239127	04239127D	04249129	04249129D	04239131
		LAB SAMPLE ID	2821.9	2821.9	2868.5	2868.5	2820.0
		SAMPLING DATE	04/23/91	04/23/91	04/24/91	04/24/91	04/24/91
		MATRIX	WATER	WATER	WATER	WATER	WATER
			ug/l	ug/l	ug/l	ug/l	ug/l
101	M	Antimony	BDL 0.8	BDL 0.8	BDL 0.8	BDL 0.8	0.8 B
102	M	Arsenic	5.3 B	BDL 1	2.1 B	1.8 B	BDL 1
103	M	Beryllium	8	BDL 1.1	3 B	BDL 1.1	10
104	M	Cadmium	BDL 3	BDL 3	BDL 3	BDL 3	3 B
105	M	Chromium	51	BDL 9.5	42	BDL 9.5	59
106	M	Copper	41	5 B	66	8 B	31
107	M	Lead	23.3	BDL 0.5	55	1 B	66
108	M	Mercury	BDL 0.2	BDL 0.2	BDL 0.2	BDL 0.2	BDL 0.2
109	M	Nickel	33 B	BDL 8.6	24 B	BDL 8.6	34 B
110	M	Selenium	0.5 B	BDL 0.5	BDL 0.5	BDL 0.5	BDL 0.5
111	M	Silver	BDL 8.1	BDL 8.1	BDL 8.1	BDL 8.1	BDL 8.1
112	M	Thallium	BDL 0.7	BDL 0.7	BDL 0.7	BDL 0.7	BDL 0.7
113	M	Zinc	1690	1940	11200	7470	14200
114	M	Barium	132 B	50 B	68 B	25 B	56 B
115	M	Iron	50200	105	23900	BDL 97.7	65900
116	M	Manganese	279	95	229	40	319
117	M	Vanadium	68	BDL 4.2	24 B	BDL 4.2	27 B
118	M	Aluminum	32000	BDL 195	18000	BDL 195	5860
120	M	Cobalt	17 B	BDL 6.4	BDL 6.4	BDL 6.4	11 B
121	M	Magnesium	5430	4980 B	2270 B	1720 B	1650 B
129	M	Calcium	17500	17900	7330	6340	7550
130	M	Sodium	55800	58800	15800	15900	22500
131	M	Potassium	3460 B	2380 B	1970 B	817 B	1420 B
203	V	Benzene	BDL 5		BDL 5		BDL 10
205	V	Bromoform	BDL 5		BDL 5		BDL 10
206	V	Carbon tetrachloride	BDL 5		BDL 5		BDL 10
207	V	Chlorobenzene	BDL 5		BDL 5		BDL 10
208	V	Dibromochloromethane	BDL 5		BDL 5		BDL 10
209	V	Chloroethane	BDL 10		BDL 10		BDL 20
211	V	Chloroform	BDL 5		BDL 5		BDL 10
212	V	Bromodichloromethane	BDL 5		BDL 5		BDL 10
214	V	1,1-Dichloroethane	BDL 5		BDL 5		BDL 10
215	V	1,2-Dichloroethane	BDL 5		BDL 5		BDL 10
216	V	1,1-Dichloroethene	BDL 5		BDL 5		BDL 10
217	V	1,2-Dichloropropane	BDL 5		BDL 5		BDL 10
218	V	Cis-1,3-Dichloropropene	BDL 5		BDL 5		BDL 10
219	V	Ethylbenzene	BDL 5		BDL 5		BDL 10
220	V	Bromomethane	BDL 10		BDL 10		BDL 20
221	V	Chloromethane	BDL 10		BDL 10		BDL 20
222	V	Methylene chloride	BDL 5		BDL 5		BDL 10
223	V	1,1,2,2-Tetrachloroethane	BDL 5		BDL 5		BDL 10
224	V	Tetrachloroethene	BDL 5		BDL 5		BDL 10
225	V	Toluene	BDL 5		BDL 5		BDL 10
227	V	1,1,1-Trichloroethane	BDL 5		BDL 5		BDL 10
228	V	1,1,2-Trichloroethane	BDL 5		BDL 5		BDL 10
229	V	Trichloroethene	BDL 5		BDL 5		230
231	V	Vinyl chloride	BDL 10		BDL 10		BDL 20
250	V	Trans-1,3-Dichloropropene	BDL 5		BDL 5		BDL 10
251	V	Styrene	BDL 5		BDL 5		BDL 10
252	V	Acetone	10 BJ		3 BJ		15 B
253	V	2-Butanone	BDL 10		BDL 10		BDL 20
254	V	Carbon disulfide	BDL 5		BDL 5		BDL 10
255	V	2-Hexanone	BDL 10		BDL 10		BDL 20
256	V	4-Methyl-2-pentanone	BDL 10		BDL 10		BDL 20
257	V	Vinyl acetate	BDL 10		BDL 10		BDL 20
289	V	Xylenes (Total)	BDL 5		BDL 5		BDL 10
299	V	1,2-Dichloroethene(Total)	BDL 5		BDL 5		50

*QA Samples

COLLIERVILLE SITE: RESULTS OF SECOND QUARTER GROUNDWATER SAMPLING EVENT: April/May, 1991

CMP	CL	COMPOUND	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		* SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	04239131D	05019135	05019135D	04249137	04249137D
		LAB SAMPLE ID	2820.0	3105	3105	2865.0	2865.0
		SAMPLING DATE	04/24/91	05/01/91	05/01/91	04/24/91	04/24/91
		MATRIX	WATER	WATER	WATER	WATER	WATER
			ug/l	ug/l	ug/l	ug/l	ug/l
101	M	Antimony	1 B	BDL 0.8	2.3 B	1.2 B	1 B
102	M	Arsenic	BDL 1	BDL 5	BDL 5	1.3 B	1.5 B
103	M	Beryllium	BDL 1.1	BDL 1.1	BDL 1.1	39	BDL 1.1
104	M	Cadmium	BDL 3	BDL 3	BDL 3	14	BDL 3
105	M	Chromium	BDL 9.5	15	BDL 9.5	276	BDL 9.5
106	M	Copper	5 B	21 B	10 B	86	7 B
107	M	Lead	2.9 B	3.9	BDL 0.5	24.4	BDL 0.5
108	M	Mercury	BDL 0.2	BDL 0.2	BDL 0.2	0.21	BDL 0.2
109	M	Nickel	BDL 8.6	29 B	26 B	181	BDL 8.6
110	M	Selenium	BDL 0.5	0.7 B	0.9 B	BDL 0.5	BDL 0.5
111	M	Silver	BDL 8.1	BDL 8.1	BDL 8.1	BDL 8.1	BDL 8.1
112	M	Thallium	BDL 0.7	BDL 0.7	BDL 0.7	1 B	BDL 0.7
113	M	Zinc	22500	945	903	571	87
114	M	Barium	39 B	61 B	57 B	778	276
115	M	Iron	399	5440	258	267000	306
116	M	Manganese	64	399	393	2010	301
117	M	Vanadium	BDL 4.2	BDL 4.2	BDL 4.2	249	BDL 4.2
118	M	Aluminum	BDL 195	1230	BDL 195	70300	BDL 195
120	M	Cobalt	BDL 6.4	10 B	10 B	49 B	BDL 6.4
121	M	Magnesium	1690 B	4070 B	4250 B	19700	11700
129	M	Calcium	10800	11300	11900	23800	17700
130	M	Sodium	24200	41800	43400	61800	60500
131	M	Potassium	1980 B	2940 B	2500 B	21800	14400
203	V	Benzene		BDL 5		BDL 50	
205	V	Bromoform		BDL 5		BDL 50	
206	V	Carbon tetrachloride		BDL 5		BDL 50	
207	V	Chlorobenzene		BDL 5		BDL 50	
208	V	Dibromochloromethane		BDL 5		BDL 50	
209	V	Chloroethane		BDL 10		BDL 100	
211	V	Chloroform		BDL 5		BDL 50	
212	V	Bromodichloromethane		BDL 5		BDL 50	
214	V	1,1-Dichloroethane		BDL 5		BDL 50	
215	V	1,2-Dichloroethane		BDL 5		BDL 50	
216	V	1,1-Dichloroethene		BDL 5		BDL 50	
217	V	1,2-Dichloropropane		BDL 5		BDL 50	
218	V	Cis-1,3-Dichloropropene		BDL 5		BDL 50	
219	V	Ethylbenzene		BDL 5		BDL 50	
220	V	Bromomethane		BDL 10		BDL 100	
221	V	Chloromethane		BDL 10		BDL 100	
222	V	Methylene chloride		17 B		85 B	
223	V	1,1,2,2-Tetrachloroethane		BDL 5		BDL 50	
224	V	Tetrachloroethene		BDL 5		BDL 50	
225	V	Toluene		BDL 5		BDL 50	
227	V	1,1,1-Trichloroethane		BDL 5		BDL 50	
228	V	1,1,2-Trichloroethane		BDL 5		BDL 50	
229	V	Trichloroethene		BDL 5		BDL 50	
231	V	Vinyl chloride		BDL 10		1200	
250	V	Trans-1,3-Dichloropropene		BDL 5		BDL 100	
251	V	Styrene		BDL 5		BDL 50	
252	V	Acetone		BDL 10		BDL 50	
253	V	2-Butanone		BDL 10		170 B	
254	V	Carbon disulfide		BDL 5		BDL 100	
255	V	2-Hexanone		BDL 10		BDL 50	
256	V	4-Methyl-2-pentanone		BDL 10		BDL 100	
257	V	Vinyl acetate		BDL 10		BDL 100	
269	V	Xylenes (Total)		BDL 5		BDL 100	
299	V	1,2-Dichloroethene(Total)		BDL 5		BDL 50	
						160	

*QA Samples

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	04249137DUP	04249137DUPD	05019157	05019157D	05019157DUP
		LAB SAMPLE ID	2866.0	2866.0	3102.3	3102.3	3106
		SAMPLING DATE	04/24/91	04/24/91	05/01/91	05/01/91	05/01/91
		MATRIX	WATER	WATER	WATER	WATER	WATER
CMP	CL	COMPOUND	ug/l	ug/l	ug/l	ug/kg	ug/kg
101	M	Antimony	BDL 0.8	BDL 0.8	BDL 0.8	1.9 B	BDL 0.8
102	M	Arsenic	BDL 1	1.2 B	BDL 1	BDL 5	BDL 1
103	M	Beryllium	57	BDL 1.1	3 B	BDL 1.1	21
104	M	Cadmium	17	BDL 3	BDL 3	BDL 3	7
105	M	Chromium	392	BDL 9.5	33	BDL 9.5	141
106	M	Copper	144	9 B	54	12 B	76
107	M	Lead	46.8	0.7 B	11	0.9 B	19.8
108	M	Mercury	0.23	BDL 0.2	BDL 0.2	BDL 0.2	BDL 0.2
109	M	Nickel	259	BDL 8.6	38 B	BDL 8.6	95
110	M	Selenium	BDL 0.5	BDL 0.5	0.4 B	BDL 0.4	0.4 B
111	M	Silver	BDL 8.1	BDL 8.1	BDL 8.1	BDL 8.1	BDL 8.1
112	M	Thallium	1.6 B	BDL 0.7	BDL 0.7	BDL 0.7	BDL 0.7
113	M	Zinc	736	99	93	120	223
114	M	Barium	1220	253	241	72 B	340
115	M	Iron	390000	270	15700	431	136000
116	M	Manganese	3670	250	656	227	962
117	M	Vanadium	377	BDL 4.2	22 B	BDL 4.2	147
118	M	Aluminum	118000	BDL 195	8600	235	54400
120	M	Cobalt	79	BDL 6.4	13 B	BDL 6.4	29 B
121	M	Magnesium	23500	11300	5320	3570 B	9440
129	M	Calcium	31300	17700	18600	14600	20500
130	M	Sodium	60900	59700	49600	52600	55700
131	M	Potassium	22800	13700	8470	7310	12000
203	V	Benzene	BDL 50		BDL 5		BDL 5
205	V	Bromoform	BDL 50		BDL 5		BDL 5
206	V	Carbon tetrachloride	BDL 50		BDL 5		BDL 5
207	V	Chlorobenzene	BDL 50		BDL 5		BDL 5
208	V	Dibromochloromethane	BDL 50		BDL 5		BDL 5
209	V	Chloroethane	BDL 100		BDL 10		BDL 10
211	V	Chloroform	BDL 50		BDL 5		BDL 5
212	V	Bromodichloromethane	BDL 50		BDL 5		BDL 5
214	V	1,1-Dichloroethane	BDL 50		BDL 5		BDL 5
215	V	1,2-Dichloroethane	BDL 50		BDL 5		BDL 5
216	V	1,1-Dichloroethene	BDL 50		BDL 5		BDL 5
217	V	1,2-Dichloropropane	BDL 50		BDL 5		BDL 5
218	V	Cis-1,3-Dichloropropene	BDL 50		BDL 5		BDL 5
219	V	Ethylbenzene	BDL 50		BDL 5		BDL 5
220	V	Bromomethane	BDL 100		BDL 10		BDL 10
221	V	Chloromethane	BDL 100		BDL 10		BDL 10
222	V	Methylene chloride	69 B		BDL 5		23 B
223	V	1,1,2,2-Tetrachloroethane	BDL 50		BDL 5		BDL 5
224	V	Tetrachloroethene	BDL 50		BDL 5		BDL 5
225	V	Toluene	BDL 50		BDL 5		BDL 5
227	V	1,1,1-Trichloroethane	BDL 50		BDL 5		BDL 5
228	V	1,1,2-Trichloroethane	BDL 50		BDL 5		BDL 5
229	V	Trichloroethene	1100		BDL 5		8
231	V	Vinyl chloride	BDL 100		BDL 10		BDL 10
250	V	Trans-1,3-Dichloropropene	BDL 50		BDL 5		BDL 5
251	V	Styrene	BDL 50		BDL 5		BDL 5
252	V	Acetone	270 B		BDL 10		BDL 10
253	V	2-Butanone	BDL 100		BDL 10		BDL 10
254	V	Carbon disulfide	BDL 50		BDL 5		BDL 5
255	V	2-Hexanone	BDL 100		BDL 10		BDL 10
256	V	4-Methyl-2-pentanone	** BDL		BDL 10		BDL 10
257	V	Vinyl acetate	BDL 100		BDL 10		BDL 10
289	V	Xylenes (Total)	BDL 50		BDL 5		BDL 5
299	V	1,2-Dichloroethene(Total)	45 J		BDL 5		BDL 5

*QA Samples

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	05019157DUPD	06069158	06069159	06069159D	06069161
		LAB SAMPLE ID	3106	4190.8	4191.6	4192.4	4193.2
		SAMPLING DATE	05/01/91	06/06/91	06/06/91	06/06/91	06/06/91
		MATRIX	WATER	WATER	WATER	WATER	WATER
CMP	CL	COMPOUND	ug/kg	ug/l	ug/l	ug/l	ug/l
101	M	Antimony	2.3 B	BDL 0.8	1.5 B	1.6 B	1.1 B
102	M	Arsenic	BDL 5	BDL 1	1.2 B	1.4 B	1.1 B
103	M	Beryllium	BDL 1.1	BDL 1.1	26	28	42
104	M	Cadmium	BDL 3	BDL 3	9	11	18
105	M	Chromium	11	BDL 9.5	121	127	214
106	M	Copper	10 B	73	91	98	167
107	M	Lead	0.7 B	3.8	6.2	7.8	43.6
108	M	Mercury	BDL 0.2	BDL 0.2	0.38	BDL 0.2	0.26
109	M	Nickel	BDL 8.6	12 B	68	74	146
110	M	Selenium	0.5 B	BDL 0.5	BDL 2.5	BDL 2.5	BDL 0.5
111	M	Silver	BDL 8.1	BDL 8.1	BDL 8.1	BDL 9.6	BDL 8.1
112	M	Thallium	BDL 0.7	BDL 0.7	BDL 0.7	0.7 B	BDL 0.7
113	M	Zinc	33	24	164	177	1780
114	M	Barium	65 B	136 B	230	244	791
115	M	Iron	199	1100	184000	204000	301000
116	M	Manganese	233	103	1360	1520	6640
117	M	Vanadium	BDL 4.2	BDL 4.2	203	220	369
118	M	Aluminum	BDL 195	439	60600	60800	114000
120	M	Cobalt	BDL 6.4	BDL 6.4	48 B	55	81
121	M	Magnesium	3480 B	4720 B	3210 B	3410 B	8080
129	M	Calcium	14400	10700	38800	41300	21900
130	M	Sodium	50000	12300	116000	120000	34500
131	M	Potassium	6730	4530 B	60800	63000	8510
203	V	Benzene		BDL 5	BDL 5	BDL 5	BDL 5
205	V	Bromoform		BDL 5	BDL 5	BDL 5	BDL 5
206	V	Carbon tetrachloride		BDL 5	BDL 5	BDL 5	BDL 5
207	V	Chlorobenzene		BDL 5	BDL 5	BDL 5	BDL 5
208	V	Dibromochloromethane		BDL 5	BDL 5	BDL 5	BDL 5
209	V	Chloroethane		BDL 10	BDL 10	BDL 10	BDL 10
211	V	Chloroform		BDL 5	BDL 5	BDL 5	BDL 5
212	V	Bromodichloromethane		BDL 5	BDL 5	BDL 5	BDL 5
214	V	1,1-Dichloroethane		BDL 5	BDL 5	BDL 5	BDL 5
215	V	1,2-Dichloroethane		BDL 5	BDL 5	BDL 5	BDL 5
216	V	1,1-Dichloroethene		BDL 5	BDL 5	BDL 5	BDL 5
217	V	1,2-Dichloropropane		BDL 5	BDL 5	BDL 5	BDL 5
218	V	Cis-1,3-Dichloropropene		BDL 5	BDL 5	BDL 5	BDL 5
219	V	Ethylbenzene		BDL 5	BDL 5	BDL 5	BDL 5
220	V	Bromomethane		BDL 10	BDL 10	BDL 10	BDL 10
221	V	Chloromethane		BDL 10	BDL 10	BDL 10	BDL 10
222	V	Methylene chloride		BDL 5	BDL 5	BDL 5	BDL 5
223	V	1,1,2,2-Tetrachloroethane		BDL 5	BDL 5	BDL 5	BDL 5
224	V	Tetrachloroethene		BDL 5	BDL 5	BDL 5	BDL 5
225	V	Toluene		BDL 5	BDL 5	BDL 5	BDL 5
227	V	1,1,1-Trichloroethane		BDL 5	BDL 5	BDL 5	BDL 5
228	V	1,1,2-Trichloroethane		BDL 5	BDL 5	BDL 5	BDL 5
229	V	Trichloroethene		BDL 5	BDL 5	BDL 5	BDL 5
231	V	Vinyl chloride		BDL 10	BDL 10	BDL 10	BDL 10
250	V	Trans-1,3-Dichloropropene		BDL 5	BDL 5	BDL 5	BDL 5
251	V	Styrene		BDL 5	BDL 5	BDL 5	BDL 5
252	V	Acetone		30	BDL 10	BDL 10	BDL 10
253	V	2-Butanone		BDL 10	BDL 10	BDL 10	BDL 10
254	V	Carbon disulfide		BDL 5	BDL 5	BDL 5	BDL 5
255	V	2-Hexanone		BDL 10	BDL 10	BDL 10	BDL 10
256	V	4-Methyl-2-pentanone		BDL 10	BDL 10	BDL 10	BDL 10
257	V	Vinyl acetate		BDL 10	BDL 10	BDL 10	BDL 10
289	V	Xylenes (Total)		BDL 5	BDL 5	BDL 5	BDL 5
299	V	1,2-Dichloroethene(Total)		BDL 5	BDL 5	BDL 5	BDL 5

*QA Samples

		SITE	COLLIERVILLE
		SAMPLE ID	06209157
		LAB SAMPLE ID	062091
		SAMPLING DATE	06/20/91
		MATRIX	WATER
CMP	CL	COMPOUND	ug/l
101	M	Antimony	BDL
102	M	Arsenic	BDL
103	M	Beryllium	BDL
104	M	Cadmium	BDL
105	M	Chromium	BDL
106	M	Copper	BDL
107	M	Lead	BDL
108	M	Mercury	BDL
109	M	Nickel	BDL
110	M	Selenium	BDL
111	M	Silver	BDL
112	M	Thallium	BDL
113	M	Zinc	BDL
114	M	Barium	BDL
115	M	Iron	BDL
116	M	Manganese	BDL
117	M	Vanadium	BDL
118	M	Aluminum	BDL
120	M	Cobalt	BDL
121	M	Magnesium	BDL
129	M	Calcium	BDL
130	M	Sodium	BDL
131	M	Potassium	BDL
203	V	Benzene	BDL 5
205	V	Bromoform	BDL 5
206	V	Carbon tetrachloride	BDL 5
207	V	Chlorobenzene	BDL 5
208	V	Dibromochloromethane	BDL 5
209	V	Chloroethane	BDL 10
211	V	Chloroform	BDL 5
212	V	Bromodichloromethane	BDL 5
214	V	1,1-Dichloroethane	BDL 5
215	V	1,2-Dichloroethane	BDL 5
216	V	1,1-Dichloroethene	BDL 5
217	V	1,2-Dichloropropane	BDL 5
218	V	Cis-1,3-Dichloropropene	BDL 5
219	V	Ethylbenzene	BDL 5
220	V	Bromomethane	BDL 10
221	V	Chloromethane	BDL 10
222	V	Methylene chloride	BDL 5
223	V	1,1,2,2-Tetrachloroethane	BDL 5
224	V	Tetrachloroethene	BDL 5
225	V	Toluene	BDL 5
227	V	1,1,1-Trichloroethane	BDL 5
228	V	1,1,2-Trichloroethane	BDL 5
229	V	Trichloroethene	15
231	V	Vinyl chloride	BDL 10
250	V	Trans-1,3-Dichloropropene	BDL 5
251	V	Styrene	BDL 5
252	V	Acetone	4 BJ
253	V	2-Butanone	BDL 10
254	V	Carbon disulfide	BDL 5
255	V	2-Hexanone	BDL 10
256	V	4-Methyl-2-pentanone	BDL 10
257	V	Vinyl acetate	BDL 10
289	V	Xylenes (Total)	BDL 5
299	V	1,2-Dichloroethene(Total)	BDL 5

*QA Samples

METHOD 8240 RESULTS

		SITE	COLLIERVILLE		COLLIERVILLE		COLLIERVILLE		COLLIERVILLE	
		SAMPLE ID	04259101		04229101B		04259103		04249105	
		LAB SAMPLE ID	04259101		04229101B		04259103		04249105	
		SAMPLING DATE	04/25/91		04/22/91		04/24/91		04/24/91	
		MATRIX	WATER		WATER		WATER		WATER	
CMP	CL	COMPOUND	ug/l		ug/l		ug/l		ug/kg	
203	V	Benzene	BDL	5	BDL	5	BDL	5	BDL	5
205	V	Bromoform	BDL	5	BDL	5	BDL	5	BDL	5
206	V	Carbon tetrachloride	BDL	5	BDL	5	BDL	5	BDL	5
207	V	Chlorobenzene	BDL	5	BDL	5	BDL	5	BDL	5
208	V	Dibromochloromethane	824.3		BDL	5	BDL	5	BDL	5
209	V	Chloroethane	BDL	10	BDL	10	BDL	10	BDL	10
211	V	Chloroform	BDL	5	BDL	5	BDL	5	BDL	5
212	V	Bromodichloromethane	BDL	5	BDL	5	BDL	5	BDL	5
214	V	1,1-Dichloroethane	BDL	5	BDL	5	BDL	5	BDL	5
215	V	1,2-Dichloroethane	BDL	5	BDL	5	BDL	5	BDL	5
216	V	1,1-Dichloroethene	BDL	5	BDL	5	BDL	5	BDL	5
217	V	1,2-Dichloropropane	BDL	5	BDL	5	BDL	5	BDL	5
218	V	Cis-1,3-Dichloropropene	BDL	5	BDL	5	BDL	5	BDL	5
219	V	Ethylbenzene	BDL	5	BDL	5	BDL	5	BDL	5
220	V	Bromomethane	BDL	10	BDL	10	BDL	10	BDL	10
221	V	Chloromethane	BDL	10	BDL	10	BDL	10	BDL	10
222	V	Methylene chloride	90.1		BDL	5	BDL	5	997.5	
223	V	1,1,2,2-Tetrachloroethane	BDL	5	BDL	5	BDL	5	BDL	5
224	V	Tetrachloroethene	BDL	5	BDL	5	BDL	5	BDL	5
225	V	Toluene	BDL	5	BDL	5	BDL	5	BDL	5
227	V	1,1,1-Trichloroethane	BDL	5	BDL	5	BDL	5	BDL	5
228	V	1,1,2-Trichloroethane	824.3		BDL	5	BDL	5	BDL	5
229	V	Trichloroethene	967.8		920.7		12507.5		10167.5	
231	V	Vinyl chloride	BDL	10	BDL	10	BDL	10	BDL	10
250	V	Trans-1,3-Dichloropropene	BDL	5	BDL	5	BDL	5	BDL	5
251	V	Styrene	BDL	5	BDL	5	BDL	5	BDL	5
252	V	Acetone	BDL	10	BDL	10	BDL	10	790.5	
253	V	2-Butanone	BDL	10	BDL	10	BDL	10	BDL	10
254	V	Carbon disulfide	BDL	5	BDL	5	BDL	5	BDL	5
255	V	2-Hexanone	BDL	10	BDL	10	BDL	10	BDL	10
256	V	4-Methyl-2-pentanone	BDL	10	BDL	10	BDL	10	BDL	10
257	V	Vinyl acetate	BDL	10	BDL	10	BDL	10	BDL	10
288	V	Xylenes (Total)	BDL	5	BDL	5	BDL	5	BDL	5
299	V	1,2-Dichloroethene(Total)	114.4		257		6905		917.5	
	V	Trichlorodifluoromethane								
	V	1,1-Dichloroethylene								
	V	2-Chloroethylvinylether	BDL	10	BDL	10	BDL	10	BDL	10
	V	1,3-Dichlorobenzene								
	V	1,2-Dichlorobenzene								
	V	1,4-Dichlorobenzene								

METHOD 8240 RESULTS

		SITE	COLLIERVILLE		COLLIERVILLE		COLLIERVILLE		COLLIERVILLE	
		SAMPLE ID	04259113		04259113DUP		04239123		04239123DUP	
		LAB SAMPLE ID	04259113		04259113DUP		04239123		04239123DUP	
		SAMPLING DATE	04/25/91		04/25/91		04/23/91		04/23/91	
		MATRIX	WATER		WATER		WATER		WATER	
CMP	CL	COMPOUND	ug/l		ug/l		ug/l		ug/l	
203	V	Benzene	BDL	5	BDL	5	BDL	5	BDL	5
205	V	Bromoform	BDL	5	BDL	5	BDL	5	BDL	5
206	V	Carbon tetrachloride	BDL	5	BDL	5	BDL	5	BDL	5
207	V	Chlorobenzene	BDL	5	BDL	5	BDL	5	BDL	5
208	V	Dibromochloromethane	BDL	5	BDL	5	BDL	5	BDL	5
209	V	Chloroethane	BDL	10	BDL	10	BDL	10	BDL	10
211	V	Chloroform	BDL	5	BDL	5	BDL	5	BDL	5
212	V	Bromodichloromethane	BDL	5	BDL	5	BDL	5	BDL	5
214	V	1,1-Dichloroethane	BDL	5	BDL	5	BDL	5	BDL	5
215	V	1,2-Dichloroethane	BDL	5	BDL	5	BDL	5	BDL	5
216	V	1,1-Dichloroethene	BDL	5	BDL	5	BDL	5	4.75	
217	V	1,2-Dichloropropane	BDL	5	BDL	5	BDL	5	BDL	5
218	V	Cis-1,3-Dichloropropene	BDL	5	BDL	5	BDL	5	BDL	5
219	V	Ethylbenzene	BDL	5	BDL	5	BDL	5	BDL	5
220	V	Bromomethane	BDL	10	BDL	10	BDL	10	BDL	10
221	V	Chloromethane	BDL	10	BDL	10	BDL	10	BDL	10
222	V	Methylene chloride	9.5		39.72		BDL	5	51.52	
223	V	1,1,2,2-Tetrachloroethane	BDL	5	BDL	5	BDL	5	BDL	5
224	V	Tetrachloroethene	BDL	5	BDL	5	BDL	5	BDL	5
225	V	Toluene	BDL	5	BDL	5	BDL	5	BDL	5
227	V	1,1,1-Trichloroethane	BDL	5	BDL	5	BDL	5	BDL	5
228	V	1,1,2-Trichloroethane	122.01		135.2		BDL	5	BDL	5
229	V	Trichloroethene	137.8		162.6		69.16		75.63	
231	V	Vinyl chloride	BDL	10	BDL	10	BDL	10	BDL	10
250	V	Trans-1,3-Dichloropropene	BDL	5	BDL	5	BDL	5	BDL	5
251	V	Styrene	BDL	5	BDL	5	BDL	5	BDL	5
252	V	Acetone	3.2		4.4 J		35.1		7.33	
253	V	2-Butanone	BDL	10	BDL	10	BDL	10	BDL	10
254	V	Carbon disulfide	BDL	5	BDL	5	17.1		BDL	5
255	V	2-Hexanone	BDL	10	BDL	10	BDL	10	BDL	10
256	V	4-Methyl-2-pentanone	BDL	10	BDL	10	BDL	10	BDL	10
257	V	Vinyl acetate	BDL	10	BDL	10	BDL	10	BDL	10
259	V	Xylenes (Total)	BDL	5	BDL	5	BDL	5	BDL	5
299	V	1,2-Dichloroethene(Total)	BDL	5	BDL	5	7.18		BDL	5
	V	Trifluorodifluoromethane								
	V	1,1-Dichloroethylene								
	V	2-Chloroethylvinylether	BDL	10	BDL	10	BDL	10	BDL	10
	V	1,3-Dichlorobenzene								
	V	1,2-Dichlorobenzene								
	V	1,4-Dichlorobenzene								

METHOD 8010 RESULTS

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	04299104	04299104DUP	04309106	04309106DUP	04299110
		LAB SAMPLE ID	04299104	04299104DUP	04309106	04309106DUP	04299110
		SAMPLING DATE	04/29/91	04/29/91	04/30/91	04/30/91	04/30/91
		MATRIX	WATER	WATER	WATER	WATER	WATER
CMP	CL	COMPOUND	ug/l	ug/l	ug/l	ug/kg	ug/l
203	V	Benzene					
205	V	Bromoform	ND	ND	ND	ND	ND
206	V	Carbon tetrachloride	ND	ND	ND	ND	ND
207	V	Chlorobenzene	ND	ND	ND	ND	ND
208	V	Dibromochloromethane	ND	ND	ND	ND	ND
209	V	Chloroethane	ND	ND	ND	ND	ND
211	V	Chloroform	ND	ND	ND	ND	ND
212	V	Bromodichloromethane	ND	ND	ND	ND	ND
214	V	1,1-Dichloroethane	ND	ND	ND	ND	ND
215	V	1,2-Dichloroethane	ND	ND	ND	ND	ND
216	V	1,1-Dichloroethene					
217	V	1,2-Dichloropropane	ND	ND	ND	ND	ND
218	V	Cis-1,3-Dichloropropene	ND	ND	ND	ND	ND
219	V	Ethylbenzene					
220	V	Bromomethane	ND	ND	ND	ND	ND
221	V	Chloromethane	ND	ND	ND	ND	ND
222	V	Methylene chloride	ND	ND	ND	ND	ND
223	V	1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND
224	V	Tetrachloroethene	ND	ND	ND	ND	ND
225	V	Toluene					
227	V	1,1,1-Trichloroethane	ND	ND	ND	ND	ND
228	V	1,1,2-Trichloroethane	ND	ND	ND	ND	ND
229	V	Trichloroethene	ND	ND	ND	ND	ND
231	V	Vinyl chloride	ND	ND	ND	ND	ND
250	V	Trans-1,3-Dichloropropene	ND	ND	ND	ND	ND
251	V	Styrene					
252	V	Acetone			ND	ND	
253	V	2-Butanone					
254	V	Carbon disulfide					
255	V	2-Hexanone					
256	V	4-Methyl-2-pentanone					
257	V	Vinyl acetate					
289	V	Xylenes (Total)					
290	V	1,2-Dichloroethene(Total)	ND	ND	ND	ND	ND
	V	Trichlorodifluoromethane	ND	ND	ND	ND	ND
	V	1,1-Dichloroethylene	ND	ND	ND	ND	ND
	V	2-Chloroethylvinylether	ND	ND	ND	ND	ND
	V	1,3-Dichlorobenzene	ND	ND	ND	ND	ND
	V	1,2-Dichlorobenzene	ND	ND	ND	ND	ND
	V	1,4-Dichlorobenzene	ND	ND	ND	ND	ND

METHOD 8010 RESULTS

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	04309112	04269114	04309115	04269116
		LAB SAMPLE ID	04309112	04269114	04309115	04269116
		SAMPLING DATE	04/30/91	04/26/91	04/30/91	04/26/91
		MATRIX	WATER	WATER	WATER	WATER
CMP	CL	COMPOUND	ug/l	ug/l	ug/l	ug/kg
203	V	Benzene				
205	V	Bromoform	ND	ND	ND	ND
206	V	Carbon tetrachloride	ND	ND	ND	ND
207	V	Chlorobenzene	ND	ND	ND	ND
208	V	Dibromochloromethane	ND	ND	ND	ND
209	V	Chloroethane	ND	ND	ND	ND
211	V	Chloroform	ND	ND	ND	ND
212	V	Bromodichloromethane	ND	ND	ND	ND
214	V	1,1-Dichloroethane	ND	ND	ND	ND
215	V	1,2-Dichloroethane	ND	ND	ND	ND
216	V	1,1-Dichloroethene				
217	V	1,2-Dichloropropane	ND	ND	ND	ND
218	V	Cis-1,3-Dichloropropene	ND	ND	ND	ND
219	V	Ethylbenzene				
220	V	Bromomethane	ND	ND	ND	ND
221	V	Chloromethane	ND	ND	ND	ND
222	V	Methylene chloride	ND	ND	ND	ND
223	V	1,1,2,2-Tetrachloroethane	ND	ND	ND	ND
224	V	Tetrachloroethene	ND	ND	ND	ND
225	V	Toluene				
227	V	1,1,1-Trichloroethane	ND	ND	ND	ND
228	V	1,1,2-Trichloroethane	ND	ND	ND	ND
229	V	Trichloroethene	ND	ND	ND	ND
231	V	Vinyl chloride	ND	ND	8.51	ND
250	V	Trans-1,3-Dichloropropene	ND	ND	ND	ND
251	V	Styrene				
252	V	Acetone	ND	ND		ND
253	V	2-Butanone				
254	V	Carbon disulfide				
255	V	2-Hexanone				
256	V	4-Methyl-2-pentanone				
257	V	Vinyl acetate				
289	V	Xylenes (Total)				
290	V	1,2-Dichloroethene(Total)	ND	ND	ND	ND
	V	Trichlorodifluoromethane	ND	ND	ND	ND
	V	1,1-Dichloroethylene	ND	ND	ND	ND
	V	2-Chloroethylvinylether	ND	ND	ND	ND
	V	1,3-Dichlorobenzene	ND	ND	ND	ND
	V	1,2-Dichlorobenzene	ND	ND	ND	ND
	V	1,4-Dichlorobenzene	ND	ND	ND	ND

METHOD 8010 RESULTS

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	04269116DUP	04309119	04239127	04249129
		LAB SAMPLE ID	04269116DUP	04309119	04239127	04249129
		SAMPLING DATE	04/26/91	04/30/91	04/23/91	04/24/91
		MATRIX	WATER	WATER	WATER	WATER
CMP	CL	COMPOUND	ug/l	ug/l	ug/l	ug/l
203	V	Benzene				
205	V	Bromoform	ND	ND	ND	ND
206	V	Carbon tetrachloride	ND	ND	ND	ND
207	V	Chlorobenzene	ND	ND	ND	ND
208	V	Dibromochloromethane	ND	ND	ND	ND
209	V	Chloroethane	ND	ND	ND	ND
211	V	Chloroform	ND	ND	ND	ND
212	V	Bromodichloromethane	ND	ND	ND	ND
214	V	1,1-Dichloroethane	ND	ND	ND	ND
215	V	1,2-Dichloroethane	ND	ND	ND	ND
216	V	1,1-Dichloroethene				
217	V	1,2-Dichloropropane	ND	ND	ND	ND
218	V	Cis-1,3-Dichloropropene	ND	ND	ND	ND
219	V	Ethylbenzene				
220	V	Bromomethane	ND	ND	ND	ND
221	V	Chloromethane	ND	ND	ND	ND
222	V	Methylene chloride	ND	ND	ND	ND
223	V	1,1,2,2-Tetrachloroethane	ND	ND	ND	ND
224	V	Tetrachloroethene	ND	ND	ND	ND
225	V	Toluene				
227	V	1,1,1-Trichloroethane	ND	ND	ND	ND
228	V	1,1,2-Trichloroethane	ND	ND	ND	ND
229	V	Trichloroethene	ND	ND	ND	ND
231	V	Vinyl chloride	ND	2.27	ND	ND
250	V	Trans-1,3-Dichloropropene	ND	ND	ND	ND
251	V	Styrene				
252	V	Acetone	ND			
253	V	2-Butanone				
254	V	Carbon disulfide				
255	V	2-Hexanone				
256	V	4-Methyl-2-pentanone				
257	V	Vinyl acetate				
289	V	Xylenes (Total)				
299	V	1,2-Dichloroethene(Total)	ND	ND	ND	ND
	V	Trichlorodifluoromethane	ND	ND	ND	ND
	V	1,1-Dichloroethylene	ND	ND	ND	ND
	V	2-Chloroethylvinylether	ND	ND	ND	ND
	V	1,3-Dichlorobenzene	ND	ND	ND	ND
	V	1,2-Dichlorobenzene	ND	ND	ND	ND
	V	1,4-Dichlorobenzene	ND	ND	ND	ND

COLLIERVILLE SITE: RESULTS OF SECOND QUARTER GROUNDWATER SAMPLING EVENT: April/May, 1991

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	04239131	05019135	04249137	04249137DUP	05019157
		LAB SAMPLE ID	04239131	05019135	04249137	04249137DUP	05019157
		SAMPLING DATE	04/23/91	05/01/91	04/24/91	04/24/91	05/01/91
		MATRIX	WATER	WATER	WATER	WATER	WATER
CMP	CL	COMPOUND	ug/l	ug/l	ug/l	ug/l	ug/l
203	V	Benzene	ND	ND	ND	ND	ND
205	V	Bromoform	ND	ND	ND	ND	ND
206	V	Carbon tetrachloride	ND	ND	ND	ND	ND
207	V	Chlorobenzene	ND	ND	ND	ND	ND
208	V	Dibromochloromethane	ND	ND	ND	ND	ND
209	V	Chloroethane	ND	ND	ND	ND	ND
211	V	Chloroform	ND	ND	ND	ND	ND
212	V	Bromodichloromethane	ND	ND	ND	ND	ND
214	V	1,1-Dichloroethane	ND	ND	ND	ND	ND
215	V	1,2-Dichloroethane	ND	ND	ND	ND	ND
216	V	1,1-Dichloroethene	ND	ND	ND	ND	ND
217	V	1,2-Dichloropropane	ND	ND	ND	ND	ND
218	V	Cis-1,3-Dichloropropene	ND	ND	ND	ND	ND
219	V	Ethylbenzene	ND	ND	ND	ND	ND
220	V	Bromomethane	ND	ND	ND	ND	ND
221	V	Chloromethane	ND	ND	ND	ND	ND
222	V	Methylene chloride	ND	ND	ND	ND	ND
223	V	1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND
224	V	Tetrachloroethene	ND	ND	ND	ND	ND
225	V	Toluene	ND	ND	ND	ND	ND
227	V	1,1,1-Trichloroethane	ND	ND	ND	ND	ND
228	V	1,1,2-Trichloroethane	ND	ND	ND	ND	ND
229	V	Trichloroethene	ND	ND	ND	ND	ND
231	V	Vinyl chloride	ND	ND	ND	ND	ND
250	V	Trans-1,3-Dichloropropene	ND	ND	ND	ND	ND
251	V	Styrene	ND	ND	ND	ND	ND
252	V	Acetone					
253	V	2-Butanone					
254	V	Carbon disulfide					
255	V	2-Hexanone					
256	V	4-Methyl-2-pentanone					
257	V	Vinyl acetate					
289	V	Xylenes (Total)					
299	V	1,2-Dichloroethene(Total)	ND	ND	ND	ND	ND
	V	Trichlorodifluoromethane	ND	ND	ND	ND	ND
	V	1,1-Dichloroethylene	ND	ND	ND	ND	ND
	V	2-Chloroethylvinylether	ND	ND	ND	ND	ND
	V	1,3-Dichlorobenzene	ND	ND	ND	ND	ND
	V	1,2-Dichlorobenzene	ND	ND	ND	ND	ND
	V	1,4-Dichlorobenzene	ND	ND	ND	ND	ND

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	05019157DUP	06069159	06069159DUP	06069161
		LAB SAMPLE ID	05019157DUP	06069159	06069159DUP	06069161
		SAMPLING DATE	05/01/91	06/06/91	06/06/91	06/06/91
		MATRIX	WATER	WATER	WATER	WATER
CMP	CL	COMPOUND	ug/l	ug/l	ug/l	ug/l
203	V	Benzene				
205	V	Bromoform	ND	ND	ND	ND
206	V	Carbon tetrachloride	ND	ND	ND	ND
207	V	Chlorobenzene	ND	ND	ND	ND
208	V	Dibromochloromethane	ND	ND	ND	ND
209	V	Chloroethane	ND	ND	ND	ND
211	V	Chloroform	ND	ND	ND	ND
212	V	Bromodichloromethane	ND	ND	ND	ND
214	V	1,1-Dichloroethane	ND	ND	ND	ND
215	V	1,2-Dichloroethane	ND	ND	ND	ND
216	V	1,1-Dichloroethene				
217	V	1,2-Dichloropropane	ND	ND	ND	ND
218	V	Cis-1,3-Dichloropropene	ND	ND	ND	ND
219	V	Ethylbenzene				
220	V	Bromomethane	ND	ND	ND	ND
221	V	Chloromethane	ND	ND	ND	ND
222	V	Methylene chloride	ND	ND	ND	ND
223	V	1,1,2,2-Tetrachloroethane	ND	ND	ND	ND
224	V	Tetrachloroethene	ND	ND	ND	ND
225	V	Toluene				
227	V	1,1,1-Trichloroethane	ND	ND	ND	ND
228	V	1,1,2-Trichloroethane	ND	ND	ND	ND
229	V	Trichloroethene	ND	ND	ND	ND
231	V	Vinyl chloride	ND	ND	ND	ND
250	V	Trans-1,3-Dichloropropene	ND	ND	ND	ND
251	V	Styrene				
252	V	Acetone				
253	V	2-Butanone				
254	V	Carbon disulfide				
255	V	2-Hexanone				
256	V	4-Methyl-2-pentanone				
257	V	Vinyl acetate				
289	V	Xylenes (Total)				
299	V	1,2-Dichloroethene(Total)	ND	ND	ND	ND
	V	Trichlorodifluoromethane	ND	ND	ND	ND
	V	1,1-Dichloroethylene	ND	ND	ND	ND
	V	2-Chloroethylvinylether	ND	ND	ND	ND
	V	1,3-Dichlorobenzene	ND	ND	ND	ND
	V	1,2-Dichlorobenzene	ND	ND	ND	ND
	V	1,4-Dichlorobenzene	ND	ND	ND	ND

ICAP RESULTS

		SITE	COLLIERVILLE		COLLIERVILLE		COLLIERVILLE	
		SAMPLE ID	04259101		04259101D		04229101B	
		LAB SAMPLE ID	04259101		04259101D		04229101B	
		SAMPLING DATE	04/25/91		04/25/91		04/22/91	
		MATRIX	WATER		WATER		WATER	
CMP	CL	COMPOUND	ug/l		ug/l		ug/l	
101	M	Antimony	BDL	0.0429	BDL	0.0370		
102	M	Arsenic						
103	M	Beryllium	BDL	1.1	BDL	1.1	BDL	1.1
104	M	Cadmium	BDL	3.0	BDL	3.0	BDL	3.0
105	M	Chromium	BDL	9.5	BDL	9.5	BDL	9.5
106	M	Copper	BDL	4.5	5.0		BDL	4.5
107	M	Lead	BDL	50.6	BDL	50.6	102.0	
108	M	Mercury						
109	M	Nickel	BDL	8.6	BDL	8.6	BDL	8.6
110	M	Selenium						
111	M	Silver	BDL	8.1	BDL	8.1	BDL	8.1
112	M	Thallium						
113	M	Zinc	22.0		23.0		5360.0	
114	M	Barium	27.0		25.0		83.0	
115	M	Iron	198.0		504.0		514.0	
116	M	Manganese	4.0		5.0		190.0	
117	M	Vanadium	BDL	4.2	BDL	4.2	BDL	4.2
118	M	Aluminum	BDL	194.9	BDL	194.9	BDL	194.9
120	M	Cobalt	BDL	6.4	BDL	6.4	BDL	6.4
121	M	Magnesium	1880.0		1900.0		1550.0	
129	M	Calcium	4810.0		5010.0		6780.0	
130	M	Sodium	17600.0		18500.0		17300.0	
131	M	Potassium	BDL	760.0	BDL	760.0	BDL	760.0

ICAP RESULTS

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	04229101BD	04249103	04249103D	04299104
		LAB SAMPLE ID	04229101BD	04249103	04249103D	04299104
		SAMPLING DATE	04/22/91	04/24/91	04/24/91	04/29/91
		MATRIX	WATER	WATER	WATER	WATER
CMP	CL	COMPOUND	ug/l	ug/l	ug/l	ug/l
101	M	Antimony		BDL 0.0429	BDL 0.0370	
102	M	Arsenic				
103	M	Beryllium	BDL 1.1	BDL 1.1	BDL 1.1	BDL 1.1
104	M	Cadmium	BDL 3.0	BDL 3.0	BDL 3.0	BDL 3.0
105	M	Chromium	BDL 9.5	BDL 9.5	BDL 9.5	BDL 9.5
106	M	Copper	5.0	7.0	7.0	BDL 4.5
107	M	Lead	62.0	454.0	266.0	109.0
108	M	Mercury				
109	M	Nickel	BDL 8.6	BDL 8.6	BDL 8.6	BDL 8.6
110	M	Selenium				
111	M	Silver	BDL 8.1	BDL 8.1	BDL 8.1	BDL 8.1
112	M	Thallium				
113	M	Zinc	6140.0	33200.0	20700.0	7130.0
114	M	Barium	88.0	79.0	93.0	70.0
115	M	Iron	416.0	7020.0	149.0	2560.0
116	M	Manganese	201.0	402.0	460.0	39.0
117	M	Vanadium	BDL 4.2	6.0	BDL 4.2	BDL 4.2
118	M	Aluminum	BDL 194.9	1750.0	BDL 194.9	2150.0
120	M	Cobalt	BDL 6.4	9.0	BDL 6.4	BDL 6.4
121	M	Magnesium	1650.0	5640.0	5650.0	4470.0
129	M	Calcium	7120.0	34100.0	33300.0	27800.0
130	M	Sodium	18400.0	25200.0	24400.0	30300.0
131	M	Potassium	BDL 760.0	BDL 760.0	BDL 760.0	BDL 760.0

ICAP RESULTS

		SITE	COLLIERVILLE		COLLIERVILLE		COLLIERVILLE		COLLIERVILLE	
		SAMPLE ID	04299104D		04299104DUP		04299104DUPD		04249105	
		LAB SAMPLE ID	04299104D		04299104DUP		04299104DUPD		04249105	
		SAMPLING DATE	04/29/91		04/29/91		04/29/91		04/24/91	
		MATRIX	WATER		WATER		WATER		WATER	
CMP	CL	COMPOUND	ug/l		ug/l		ug/l		ug/l	
101	M	Antimony							BDL	0.0429
102	M	Arsenic								
103	M	Beryllium	BDL	1.1	BDL	1.1	BDL	1.1	19.0	
104	M	Cadmium	BDL	3.0	3.0		BDL	3.0	6.0	
105	M	Chromium	BDL	9.5	BDL	9.5	BDL	9.5	41.0	
106	M	Copper	BDL	4.5	BDL	4.5	BDL	4.5	43.0	
107	M	Lead	BDL	50.6	122.0		BDL	50.6	332.0	
108	M	Mercury								
109	M	Nickel	BDL	8.6	9.0		9.0		43.0	
110	M	Selenium								
111	M	Silver	BDL	8.1	11.0		BDL	8.1	BDL	8.1
112	M	Thallium								
113	M	Zinc	3810.0		8190.0		3680.0		13450.0	
114	M	Barium	35.0		43.0		35.0		365.0	
115	M	Iron	296.0		2850.0		108.0		135000.0	
116	M	Manganese	25.0		44.0		23.0		421.0	
117	M	Vanadium	BDL	4.2	BDL	4.2	BDL	4.2	93.0	
118	M	Aluminum	BDL	194.9	2150.0		BDL	194.9	26700.0	
120	M	Cobalt	BDL	6.4	BDL	6.4	BDL	6.4	20.0	
121	M	Magnesium	4060.0		4760.0		4090.0		10600.0	
129	M	Calcium	26800.0		30100.0		27400.0		44000.0	
130	M	Sodium	30200.0		30800.0		30800.0		142000.0	
131	M	Potassium	950.0		835.0		877.0		3790.0	

ICAP RESULTS

		SITE	COLLIERVILLE		COLLIERVILLE		COLLIERVILLE		COLLIERVILLE	
		SAMPLE ID	04249105D		04309106		04309106D		04309106DUP	
		LAB SAMPLE ID	04249105D		04309106		04309106D		04309106DUP	
		SAMPLING DATE	04/24/91		04/30/91		04/30/91		04/30/91	
		MATRIX	WATER		WATER		WATER		WATER	
CMP	CL	COMPOUND	ug/l		ug/l		ug/l		ug/l	
101	M	Antimony	BDL	0.0370	BDL	0.0429	BDL	0.0370	BDL	0.0429
102	M	Arsenic								
103	M	Beryllium	BDL	1.1	BDL	1.1	BDL	1.1	BDL	1.1
104	M	Cadmium	BDL	3.0	3.0		BDL	3.0	5.0	
105	M	Chromium	BDL	9.5	BDL	9.5	BDL	9.5	BDL	9.5
106	M	Copper	8.0		7.0		5.0		7.0	
107	M	Lead	BDL	50.6	BDL	50.6	BDL	7.76	BDL	50.6
108	M	Mercury								
109	M	Nickel	BDL	8.6	BDL	8.6	BDL	8.6	BDL	8.6
110	M	Selenium								
111	M	Silver	BDL	8.1	11.0		9.0		9.0	
112	M	Thallium								
113	M	Zinc	2030.0		2570.0		2640.0		2670.0	
114	M	Barium	176.0		35.0		36.0		36.0	
115	M	Iron	292.0		869.0		294.0		890.0	
116	M	Manganese	61.0		35.0		37.0		38.0	
117	M	Vanadium	BDL	4.2	10.0		8.0		8.0	
118	M	Aluminum	BDL	194.9	BDL	194.9	BDL	194.9	BDL	194.9
120	M	Cobalt	BDL	6.4	BDL	6.4	BDL	6.4	BDL	6.4
121	M	Magnesium	8820.0		3070.0		3140.0		3210.0	
129	M	Calcium	39400.0		8190.0		8490.0		8370.0	
130	M	Sodium	127000.0		17200.0		17900.0		17700.0	
131	M	Potassium	1460.0		2010.0		997.0		913.0	

ICAP RESULTS

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	04309106DUPD	04299110	04299110D	04309112
		LAB SAMPLE ID	04309106DUPD	04299110	04299110D	04309112
		SAMPLING DATE	04/30/91	04/29/91	04/29/91	04/30/91
		MATRIX	WATER	WATER	WATER	WATER
CMP	CL	COMPOUND	ug/l	ug/l	ug/l	ug/l
101	M	Antimony	BDL 0.0370			BDL 0.0429
102	M	Arsenic				
103	M	Beryllium	BDL 1.1	BDL 1.1	BDL 1.1	BDL 1.1
104	M	Cadmium	3.0	BDL 3.0	BDL 3.0	4.0
105	M	Chromium	BDL 9.5	BDL 9.5	BDL 9.5	BDL 9.5
106	M	Copper	BDL 4.5	BDL 4.5	11.0	8.0
107	M	Lead	BDL 7.76	BDL 50.6	BDL 50.6	BDL 50.6
108	M	Mercury				
109	M	Nickel	BDL 8.6	15.0	BDL 8.6	15.0
110	M	Selenium				
111	M	Silver	BDL 8.1	BDL 8.1	BDL 8.1	12.0
112	M	Thallium				
113	M	Zinc	2680.0	34.0	32.0	291.0
114	M	Barium	37.0	44.0	46.0	30.0
115	M	Iron	275.0	BDL 97.7	BDL 97.7	324.0
116	M	Manganese	37.0	3.0	4.0	8.0
117	M	Vanadium	9.0	BDL 4.2	BDL 4.2	11.0
118	M	Aluminum	BDL 194.9	BDL 194.9	BDL 194.9	BDL 194.9
120	M	Cobalt	BDL 6.4	BDL 6.4	BDL 6.4	7.0
121	M	Magnesium	3720.0	3500.0	3480.0	3500.0
129	M	Calcium	8620.0	15500.0	15300.0	8640.0
130	M	Sodium	18200.0	27100.0	26600.0	15500.0
131	M	Potassium	1500.0	4360.0	4420.0	1820.0

ICAP RESULTS

		SITE	COLLIERVILLE		COLLIERVILLE		COLLIERVILLE		COLLIERVILLE	
		SAMPLE ID	04309112D		04259113		04259113D		04259113DUP	
		LAB SAMPLE ID	04309112D		04259113		04259113D		04259113DUP	
		SAMPLING DATE	04/30/91		04/25/91		04/25/91		04/25/91	
		MATRIX	WATER		WATER		WATER		WATER	
CMP	CL	COMPOUND	ug/l		ug/l		ug/l		ug/l	
101	M	Antimony	BDL	0.0370	BDL	0.0429	BDL	0.0370	BDL	0.0429
102	M	Arsenic								
103	M	Beryllium	BDL	1.1	BDL	1.1	BDL	1.1	BDL	1.1
104	M	Cadmium	BDL	3.0	BDL	3.0	BDL	3.0	BDL	3.0
105	M	Chromium	BDL	9.5	BDL	9.5	BDL	9.5	BDL	9.5
106	M	Copper	7.0		5.0		BDL	4.5	BDL	4.5
107	M	Lead	BDL	7.76	BDL	50.6	BDL	50.6	BDL	50.6
108	M	Mercury								
109	M	Nickel	BDL	8.6	BDL	8.6	BDL	8.6	BDL	8.6
110	M	Selenium								
111	M	Silver	BDL	8.1	BDL	8.1	BDL	8.1	BDL	8.1
112	M	Thallium								
113	M	Zinc	47.0		20.0		50.0		21.0	
114	M	Barium	26.0		56.0		58.0		55.0	
115	M	Iron	BDL	97.7	127.0		132.0		315.0	
116	M	Manganese	BDL	1.5	5.0		6.0		8.0	
117	M	Vanadium	8.0		BDL	4.2	BDL	4.2	BDL	4.2
118	M	Aluminum	BDL	194.9	BDL	194.9	BDL	194.9	BDL	194.9
120	M	Cobalt	BDL	6.4	BDL	6.4	BDL	6.4	BDL	6.4
121	M	Magnesium	3260.0		2420.0		2420.0		2360.0	
129	M	Calcium	8240.0		5970.0		5860.0		5750.0	
130	M	Sodium	15000.0		64400.0		62600.0		61500.0	
131	M	Potassium	1260.0		BDL	760.0	BDL	760.0	BDL	760.0

ICAP RESULTS

		SITE	COLLIERVILLE		COLLIERVILLE		COLLIERVILLE		COLLIERVILLE	
		SAMPLE ID	04259113DUPD		04269114		04269114D		04269116	
		LAB SAMPLE ID	04259113DUPD		04269114		04269114D		04269116	
		SAMPLING DATE	04/25/91		04/26/91		04/26/91		04/26/91	
		MATRIX	WATER		WATER		WATER		WATER	
CMP	CL	COMPOUND	ug/l		ug/l		ug/l		ug/l	
101	M	Antimony	BDL	0.0370	BDL	0.0429	BDL	0.0370	BDL	0.0429
102	M	Arsenic								
103	M	Beryllium	BDL	1.1	BDL	1.1	BDL	1.1	BDL	1.1
104	M	Cadmium	BDL	3.0	BDL	3.0	BDL	3.0	BDL	3.0
105	M	Chromium	BDL	9.5	26.0		BDL	9.5	BDL	9.5
106	M	Copper	6.0		BDL	4.5	7.0		5.0	
107	M	Lead	BDL	50.6	BDL	50.6	BDL	50.6	83.0	
108	M	Mercury								
109	M	Nickel	BDL	8.6	BDL	8.6	BDL	8.6	BDL	8.6
110	M	Selenium								
111	M	Silver	BDL	8.1	BDL	8.1	BDL	8.1	BDL	8.1
112	M	Thallium								
113	M	Zinc	46.0		9.0		55.0		4690.0	
114	M	Barium	57.0		29.0		30.0		24.0	
115	M	Iron	224.0		274.0		156.0		533.0	
116	M	Manganese	7.0		BDL	1.5	2.0		31.0	
117	M	Vanadium	BDL	4.2	BDL	4.2	BDL	4.2	BDL	4.2
118	M	Aluminum	BDL	194.9	BDL	194.9	BDL	194.9	BDL	194.9
120	M	Cobalt	BDL	6.4	BDL	6.4	BDL	6.4	BDL	6.4
121	M	Magnesium	2330.0		2610.0		2580.0		1420.0	
129	M	Calcium	5650.0		7160.0		7120.0		4490.0	
130	M	Sodium	61500.0		23100.0		22600.0		15400.0	
131	M	Potassium	BDL	760.0	BDL	760.0	841.0		BDL	760.0

ICAP RESULTS

		SITE	COLLIERVILLE		COLLIERVILLE		COLLIERVILLE		COLLIERVILLE	
		SAMPLE ID	04269116D		04269116DUP		04269116DUPD		04239123	
		LAB SAMPLE ID	04269116D		04269116UP		04269116DUPD		04239123	
		SAMPLING DATE	04/26/91		04/26/91		04/26/91		04/23/91	
		MATRIX	WATER		WATER		WATER		WATER	
CMP	CL	COMPOUND	ug/l		ug/l		ug/l		ug/l	
101	M	Antimony	BDL	0.0370	BDL	0.0429	BDL	0.0370		
102	M	Arsenic								
103	M	Beryllium	BDL	1.1	BDL	1.1	BDL	1.1	9.0	
104	M	Cadmium	BDL	3.0	BDL	3.0	BDL	3.0	4.0	
105	M	Chromium	BDL	9.5	BDL	9.5	BDL	9.5	BDL	9.5
106	M	Copper	6.0		9.0		5.0		11.0	
107	M	Lead	80.0		74.0		83.0		334.0	
108	M	Mercury								
109	M	Nickel	BDL	8.6	BDL	8.6	BDL	8.6	14.0	
110	M	Selenium								
111	M	Silver	BDL	8.1	BDL	8.1	BDL	8.1	BDL	8.1
112	M	Thallium								
113	M	Zinc	4110.0		4750.0		4080.0		18600.0	
114	M	Barium	26.0		24.0		25.0		143.0	
115	M	Iron	341.0		869.0		542.0		70500.0	
116	M	Manganese	25.0		33.0		27.0		509.0	
117	M	Vanadium	BDL	4.2	BDL	4.2	BDL	4.2	41.0	
118	M	Aluminum	BDL	194.9	209.0		BDL	194.9	8630.0	
120	M	Cobalt	BDL	6.4	BDL	6.4	BDL	6.4	8.0	
121	M	Magnesium	1310.0		1410.0		1310.0		3530.0	
129	M	Calcium	4150.0		4480.0		4360.0		8910.0	
130	M	Sodium	14800.0		15400.0		15600.0		63600.0	
131	M	Potassium	BDL	760.0	BDL	760.0	BDL	760.0	1720.0	

ICAP RESULTS

		SITE	COLLIERVILLE		COLLIERVILLE		COLLIERVILLE	
		SAMPLE ID	04239123D		04239123DUP		04239123DUPD	
		LAB SAMPLE ID	04239123D		04239123DUP		04239123DUPD	
		SAMPLING DATE	04/23/91		04/23/91		04/23/91	
		MATRIX	WATER		WATER		WATER	
CMP	CL	COMPOUND	ug/l		ug/l		ug/l	
101	M	Antimony						
102	M	Arsenic						
103	M	Beryllium	BDL	1.1	9.0		BDL	1.1
104	M	Cadmium	BDL	3.0	6.0		BDL	3.0
105	M	Chromium	BDL	9.5	BDL	9.5	BDL	9.5
106	M	Copper	BDL	4.5	11.0		BDL	4.5
107	M	Lead	90.0		300.0		99.0	
108	M	Mercury						
109	M	Nickel	BDL	8.6	16.0		BDL	8.6
110	M	Selenium						
111	M	Silver	BDL	8.1	BDL	8.1	BDL	8.1
112	M	Thallium						
113	M	Zinc	5380.0		14100.0		5640.0	
114	M	Barium	86.0		136.0		72.0	
115	M	Iron	615.0		68100.0		260.0	
116	M	Manganese	200.0		510.0		203.0	
117	M	Vanadium	5.0		39.0		5.0	
118	M	Aluminum	BDL	194.9	9310.0		BDL	194.9
120	M	Cobalt	BDL	6.4	7.0		BDL	6.4
121	M	Magnesium	2680.0		3500.0		2200.0	
129	M	Calcium	7440.0		8160.0		6020.0	
130	M	Sodium	63900.0		59500.0		50400.0	
131	M	Potassium	874.0		1840.0		1100.0	

AUGUST 1991

QUARTERLY GROUNDWATER SAMPLES

CLP TCL/TAL

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	08209104	08239133	08239133	08239133D
		LAB SAMPLE ID	4942.9	5023.0	5023.0 D	5027.3
		SAMPLING DATE	08/20/91	08/23/91	08/23/91	08/23/91
		MATRIX	WATER	WATER	WATER	WATER
CMPD	CL	COMPOUND	ug/l	ug/kg	ug/kg	ug/kg
101	M	Antimony	1 B	BDL 358	968	BDL 14.3
102	M	Arsenic	BDL 1	BDL 1	BDL 1.2	1.8 B
103	M	Beryllium	BDL 1.1	24.5	24.5	4.4 B
104	M	Cadmium	BDL 3	120 B	224	6.1
105	M	Chromium	BDL 9.5	383	383	94.8
106	M	Copper	5 B	442 B	955	101
107	M	Lead	2.9 B	87	7.1	18.3
108	M	Mercury	BDL 0.2	5.4	BDL 0.2	0.72
109	M	Nickel	BDL 8.6	134	134	29.8 B
110	M	Selenium	BDL 0.5	1.3 B	0.8 B	1.2 B
111	M	Silver	BDL 8.1	BDL 65	608	BDL 2.6
112	M	Thallium	BDL 0.7	1.2 B	BDL 0.6	BDL 0.6
113	M	Zinc	22500	1190	511	497
114	M	Barium	39 B	1140	1140	303
115	M	Iron	399	1740000	BDL 5.3	304000
116	M	Manganese	64	21700	19800	3700
117	M	Vanadium	BDL 4.2	705 B	89.9	156
118	M	Aluminum	BDL 195	151000	151000	59800
120	M	Cobalt	BDL 6.4	753	753	146
121	M	Magnesium	1690 B	15100 B	12900	7970
129	M	Calcium	10800	35000 B	219000	17100
130	M	Sodium	24200	24500	24500	26500
131	M	Potassium	1980 B	6060	6060	3890 B
203	V	Benzene	BDL 5	BDL 5		BDL 5
205	V	Bromoform	BDL 5	BDL 5		BDL 5
206	V	Carbon tetrachloride	BDL 5	BDL 5		BDL 5
207	V	Chlorobenzene	BDL 5	BDL 5		BDL 5
208	V	Dibromochloromethane	BDL 5	BDL 5		BDL 5
209	V	Chloroethane	BDL 10	BDL 10		BDL 10
211	V	Chloroform	BDL 5	BDL 5		BDL 5
212	V	Bromodichloromethane	BDL 5	BDL 5		BDL 5
214	V	1,1-Dichloroethane	BDL 5	BDL 5		BDL 5
215	V	1,2-Dichloroethane	BDL 5	BDL 5		BDL 5
216	V	1,1-Dichloroethene	BDL 5	BDL 5		BDL 5
217	V	1,2-Dichloropropane	BDL 5	BDL 5		BDL 5
218	V	Cis-1,3-Dichloropropene	BDL 5	BDL 5		BDL 5
219	V	Ethylbenzene	BDL 5	BDL 5		BDL 5
220	V	Bromomethane	BDL 10	BDL 10		BDL 10
221	V	Chloromethane	BDL 10	BDL 10		BDL 10
222	V	Methylene chloride	BDL 5	BDL 5		BDL 5
223	V	1,1,2,2-Tetrachloroethane	BDL 5	BDL 5		BDL 5
224	V	Tetrachloroethene	BDL 5	BDL 5		BDL 5
225	V	Toluene	BDL 5	BDL 5		BDL 5
227	V	1,1,1-Trichloroethane	BDL 5	BDL 5		BDL 5
228	V	1,1,2-Trichloroethane	BDL 5	BDL 5		BDL 5
229	V	Trichloroethene	BDL 5	BDL 5		BDL 5
231	V	Vinyl chloride	BDL 10	BDL 10		BDL 10
250	V	Trans-1,3-Dichloropropene	BDL 5	BDL 5		BDL 5
251	V	Styrene	BDL 5	BDL 5		BDL 5
252	V	Acetone	17	BDL 10		BDL 10
253	V	2-Butanone	BDL 10	BDL 10		BDL 10
254	V	Carbon disulfide	BDL 5	BDL 5		BDL 5
255	V	2-Hexanone	BDL 10	BDL 10		BDL 10
256	V	4-Methyl-2-pentanone	BDL 10	BDL 10		BDL 10
257	V	Vinyl acetate	BDL 10	BDL 10		BDL 10
289	V	Xylenes (Total)	BDL 5	BDL 5		BDL 5
299	V	1,2-Dichloroethene(Total)	BDL 5	BDL 5		BDL 5

CLP TCL/TAL

		SITE	COLLIERVILLE		COLLIERVILLE		COLLIERVILLE		COLLIERVILLE	
		SAMPLE ID	08239133D		08279139		08279139		08269147	
		LAB SAMPLE ID	5027.3 D		5212.8		5212.8 D		5098.2	
		SAMPLING DATE	08/23/91		08/27/91		08/27/91		08/26/91	
		MATRIX	WATER		WATER		WATER		WATER	
CMPD	CL	COMPOUND	ug/kg		ug/l		ug/l		ug/l	
101	M	Antimony	BDL	14.3	BDL	14.3	BDL	14.3	BDL	14.3
102	M	Arsenic	BDL	1.2	BDL	1	BDL	1	BDL	1.2
103	M	Beryllium	BDL	0.6	2.1 B		BDL	0.6	3.9 B	
104	M	Cadmium	BDL	3.2	5.9		BDL	3.2	4.3 B	
105	M	Chromium	BDL	3.3	104		BDL	3.3	143	
106	M	Copper	3.7 B		129		9.4 B		187	
107	M	Lead	BDL	0.5	58		61.5		9.8	
108	M	Mercury	BDL	0.2	BDL	0.2	BDL	0.2	BDL	0.2
109	M	Nickel	BDL	10	60.5		12.5 B		69.7	
110	M	Selenium	1.3 B		1.4 B		0.8 B		1.1 B	
111	M	Silver	BDL	2.6	BDL	2.6	BDL	2.6	BDL	2.6
112	M	Thallium	BDL	0.6	BDL	0.6	BDL	0.6	BDL	0.6
113	M	Zinc	126		5050		2080		118	
114	M	Barium	50.1 B		425		224		159 B	
115	M	Iron	86.4 B		226000		118		58600	
116	M	Manganese	32.6		957		415		265	
117	M	Vanadium	BDL	3.2	113		BDL	3.2	112	
118	M	Aluminum	75.3 B		24400		101 B		31300	
120	M	Cobalt	BDL	4	28.4 B		5.4 B		23.4 B	
121	M	Magnesium	5900		10900		9320		5500	
129	M	Calcium	14300		24300		22100		13200	
130	M	Sodium	25700		50900		50600		78400	
131	M	Potassium	1290 B		8850		7210		3780 B	
203	V	Benzene			BDL	5			BDL	5
205	V	Bromoform			BDL	5			BDL	5
206	V	Carbon tetrachloride			BDL	5			BDL	5
207	V	Chlorobenzene			BDL	5			BDL	5
208	V	Dibromochloromethane			BDL	5			BDL	5
209	V	Chloroethane			BDL	10			BDL	10
211	V	Chloroform			BDL	5			BDL	5
212	V	Bromodichloromethane			BDL	5			BDL	5
214	V	1,1-Dichloroethane			BDL	5			BDL	5
215	V	1,2-Dichloroethane			BDL	5			BDL	5
216	V	1,1-Dichloroethene			BDL	5			BDL	5
217	V	1,2-Dichloropropane			BDL	5			BDL	5
218	V	Cis-1,3-Dichloropropene			BDL	5			BDL	5
219	V	Ethylbenzene			BDL	5			BDL	5
220	V	Bromomethane			BDL	10			BDL	10
221	V	Chloromethane			BDL	10			BDL	10
222	V	Methylene chloride			BDL	5			BDL	5
223	V	1,1,2,2-Tetrachloroethane			BDL	5			BDL	5
224	V	Tetrachloroethene			BDL	5			BDL	5
225	V	Toluene			BDL	5			BDL	5
227	V	1,1,1-Trichloroethane			BDL	5			BDL	5
228	V	1,1,2-Trichloroethane			BDL	5			BDL	5
229	V	Trichloroethene			6900				BDL	5
231	V	Vinyl chloride			BDL	10			BDL	10
250	V	Trans-1,3-Dichloropropene			BDL	5			BDL	5
251	V	Styrene			BDL	5			BDL	5
252	V	Acetone			BDL	10			BDL	10
253	V	2-Butanone			BDL	10			BDL	10
254	V	Carbon disulfide			BDL	5			BDL	5
255	V	2-Hexanone			BDL	10			BDL	10
256	V	4-Methyl-2-pentanone			BDL	10			BDL	10
257	V	Vinyl acetate			BDL	10			BDL	10
289	V	Xylenes (Total)			BDL	5			BDL	5
299	V	1,2-Dichloroethene(Total)			4 J				BDL	5

CLP TCL/TAL

SITE			COLLIERVILLE		COLLIERVILLE		COLLIERVILLE		COLLIERVILLE	
SAMPLE ID			08289147		08289153		08289153		08299157	
LAB SAMPLE ID			5098.2 D		5213.6		5213.6 D		5248.9	
SAMPLING DATE			08/26/91		08/28/91		08/28/91		08/29/91	
MATRIX			WATER		WATER		WATER		WATER	
CMPD	CL	COMPOUND	ug/l		ug/l		ug/l		ug/l	
101	M	Antimony	BDL	14.3	BDL	14.3	BDL	14.3	BDL	14.3
102	M	Arsenic	BDL	1.2	BDL	1	BDL	1	BDL	1.2
103	M	Beryllium	BDL	0.6	7.3		BDL	0.6	3 B	
104	M	Cadmium	BDL	3.2	BDL	3.2	BDL	3.2	BDL	3.2
105	M	Chromium	BDL	3.3	85		4.2 B		127	
106	M	Copper	15.4 B		238		18.8 B		128	
107	M	Lead	0.8 B		27.6		0.7 B		23.3	
108	M	Mercury	BDL	0.2	BDL	0.2	BDL	0.2	BDL	0.2
109	M	Nickel	BDL	10	118		10 B		77.3	
110	M	Selenium	BDL	0.5	0.5 B		BDL	0.5	0.9 B	
111	M	Silver	BDL	2.6	BDL	2.6	BDL	2.6	BDL	2.6
112	M	Thallium	BDL	0.6	BDL	0.6	BDL	0.6	BDL	0.6
113	M	Zinc	35.7		238		54.8		236	
114	M	Barium	38.5 B		341		41.5 B		475	
115	M	Iron	139		54600		241		108000	
116	M	Manganese	2.3 B		1270		175		725	
117	M	Vanadium	BDL	3.2	27.6 B		BDL	3.2	137	
118	M	Aluminum	67.1 B		42900		289		63300	
120	M	Cobalt	BDL	4	13.6 B		BDL	4	24.1 B	
121	M	Magnesium	3790 B		13300		3410 B		10900	
129	M	Calcium	10200		32100		11100		17700	
130	M	Sodium	76300		41200		43400		46300	
131	M	Potassium	1210 B		4820 B		3560 B		7650	
203	V	Benzene			BDL	5			BDL	5
205	V	Bromoform			BDL	5			BDL	5
206	V	Carbon tetrachloride			BDL	5			BDL	5
207	V	Chlorobenzene			BDL	5			BDL	5
208	V	Dibromochloromethane			BDL	5			BDL	5
209	V	Chloroethane			BDL	10			BDL	10
211	V	Chloroform			BDL	5			BDL	5
212	V	Bromodichloromethane			BDL	5			BDL	5
214	V	1,1-Dichloroethane			BDL	5			BDL	5
215	V	1,2-Dichloroethane			BDL	5			BDL	5
216	V	1,1-Dichloroethene			BDL	5			BDL	5
217	V	1,2-Dichloropropane			BDL	5			BDL	5
218	V	Cis-1,3-Dichloropropene			BDL	5			BDL	5
219	V	Ethylbenzene			BDL	5			BDL	5
220	V	Bromomethane			BDL	10			BDL	10
221	V	Chloromethane			BDL	10			BDL	10
222	V	Methylene chloride			BDL	5			BDL	5
223	V	1,1,2,2-Tetrachloroethane			BDL	5			BDL	5
224	V	Tetrachloroethene			BDL	5			BDL	5
225	V	Toluene			BDL	5			BDL	5
227	V	1,1,1-Trichloroethane			BDL	5			BDL	5
228	V	1,1,2-Trichloroethane			BDL	5			BDL	5
229	V	Trichloroethene			7				22	
231	V	Vinyl chloride			BDL	10			BDL	10
250	V	Trans-1,3-Dichloropropene			BDL	5			BDL	5
251	V	Styrene			BDL	5			BDL	5
252	V	Acetone			BDL	10			BDL	10
253	V	2-Butanone			BDL	10			BDL	10
254	V	Carbon disulfide			BDL	5			BDL	5
255	V	2-Hexanone			BDL	10			BDL	10
256	V	4-Methyl-2-pentanone			BDL	10			BDL	10
257	V	Vinyl acetate			BDL	10			BDL	10
289	V	Xylenes (Total)			BDL	5			BDL	5
299	V	1,2-Dichloroethene(Total)			BDL	5			BDL	5

CLP TCL/TAL

		SITE	COLLIERVILLE		COLLIERVILLE		COLLIERVILLE		COLLIERVILLE	
		SAMPLE ID	08299157		08299157D		08299157D		08299158	
		LAB SAMPLE ID	5248.9 D		5249.7		5249.7 D		5250.0	
		SAMPLING DATE	08/29/91		08/29/91		08/29/91		08/29/91	
		MATRIX	WATER		WATER		WATER		WATER	
CMPD	CL	COMPOUND	ug/l		ug/l		ug/l		ug/l	
101	M	Antimony	BDL	14.3	BDL	14.3	BDL	14.3	BDL	14.3
102	M	Arsenic	BDL	1.2	BDL	1.2	BDL	1.2	BDL	1.2
103	M	Beryllium	BDL	0.6	3 B		BDL	0.6	BDL	0.6
104	M	Cadmium	BDL	3.2	BDL	3.2	BDL	3.2	BDL	3.2
105	M	Chromium	4.1 B		133		BDL	3.3	4.5 B	
106	M	Copper	6 B		128		7.1 B		27.1 B	
107	M	Lead	BDL	0.5	25.2		BDL	0.5	BDL	0.5
108	M	Mercury	BDL	0.2	BDL	0.2	BDL	0.2	BDL	0.2
109	M	Nickel	BDL	10	69.5		BDL	10	15.3 B	
110	M	Selenium			BDL	0.5			BDL	0.5
111	M	Silver	BDL	2.6	BDL	2.6	BDL	2.6	BDL	2.6
112	M	Thallium	BDL	0.6	BDL	0.6	BDL	0.6	BDL	0.6
113	M	Zinc	73.4		280		89.5		113	
114	M	Barium	76.8 B		461		76.3 B		83.7 B	
115	M	Iron	261		109000		206		257	
116	M	Manganese	111		715		76.7		95	
117	M	Vanadium	BDL	3.2	132		BDL	3.2	BDL	3.2
118	M	Aluminum	111 B		57500		146 B		69.6 B	
120	M	Cobalt	BDL	4	24.3 B		BDL	4	4.8 B	
121	M	Magnesium	4470 B		10700		4340 B		2850 B	
129	M	Calcium	11800		16900		11300		5500	
130	M	Sodium	44000		45900		44300		10600	
131	M	Potassium	1670 B		6310		1480 B		1240 B	
203	V	Benzene			BDL	5			BDL	5
205	V	Bromoform			BDL	5			BDL	5
206	V	Carbon tetrachloride			BDL	5			BDL	5
207	V	Chlorobenzene			BDL	5			BDL	5
208	V	Dibromochloromethane			BDL	5			BDL	5
209	V	Chloroethane			BDL	10			BDL	10
211	V	Chloroform			BDL	5			BDL	5
212	V	Bromodichloromethane			BDL	5			BDL	5
214	V	1,1-Dichloroethane			BDL	5			BDL	5
215	V	1,2-Dichloroethane			BDL	5			BDL	5
216	V	1,1-Dichloroethene			BDL	5			BDL	5
217	V	1,2-Dichloropropane			BDL	5			BDL	5
218	V	Cis-1,3-Dichloropropene			BDL	5			BDL	5
219	V	Ethylbenzene			BDL	5			BDL	5
220	V	Bromomethane			BDL	10			BDL	10
221	V	Chloromethane			BDL	10			BDL	10
222	V	Methylene chloride			BDL	5			BDL	5
223	V	1,1,2,2-Tetrachloroethane			BDL	5			BDL	5
224	V	Tetrachloroethene			BDL	5			BDL	5
225	V	Toluene			BDL	5			BDL	5
227	V	1,1,1-Trichloroethane			BDL	5			BDL	5
228	V	1,1,2-Trichloroethane			BDL	5			BDL	5
229	V	Trichloroethene			24				BDL	5
231	V	Vinyl chloride			BDL	10			BDL	10
250	V	Trans-1,3-Dichloropropene			BDL	5			BDL	5
251	V	Styrene			BDL	5			BDL	5
252	V	Acetone			BDL	10			BDL	10
253	V	2-Butanone			BDL	10			BDL	10
254	V	Carbon disulfide			BDL	5			BDL	5
255	V	2-Hexanone			BDL	10			BDL	10
256	V	4-Methyl-2-pentanone			BDL	10			BDL	10
257	V	Vinyl acetate			BDL	10			BDL	10
289	V	Xylenes (Total)			BDL	5			BDL	5
299	V	1,2-Dichloroethene(Total)			BDL	5			BDL	5

CLP TCL/TAL

		SITE	COLLIERVILLE		COLLIERVILLE		COLLIERVILLE		COLLIERVILLE	
		SAMPLE ID	08299158		08239159		08239159		08239161	
		LAB SAMPLE ID	5250.0 D		5024.9		5024.9 D		5025.7	
		SAMPLING DATE	08/29/91		08/23/91		08/23/91		08/23/91	
		MATRIX	WATER		WATER		WATER		WATER	
CMPD	CL	COMPOUND	ug/l		ug/l		ug/l		ug/l	
101	M	Antimony	BDL	14.3	BDL	14.3	BDL	14.3	BDL	14.3
102	M	Arsenic	BDL	1.2	1.4 B		BDL	1.2	2.5 B	
103	M	Beryllium	BDL	0.6	2.2 B		BDL	0.6	6.6	
104	M	Cadmium	BDL	3.2	3.4 B		BDL	3.2	5.6	
105	M	Chromium	BDL	3.3	73.6		4.2 B		203	
106	M	Copper	20.5 B		104		10.6 B		190	
107	M	Lead	BDL	0.5	20.7		BDL	0.5	56	
108	M	Mercury	BDL	0.2	BDL	0.2	BDL	0.2	0.38	
109	M	Nickel	20.3 B		39.2 B		BDL	10	103	
110	M	Selenium			1.2 B		BDL	0.5	1.5 B	
111	M	Silver	BDL	2.6	BDL	2.6	BDL	2.6	BDL	2.6
112	M	Thallium	BDL	0.6	BDL	0.6	BDL	0.6	BDL	0.6
113	M	Zinc	74.6		185		46.5		601	
114	M	Barium	76 B		153 B		30.4 B		534	
115	M	Iron	89.8 B		90100		106		206000	
116	M	Manganese	102		771		37.5		3620	
117	M	Vanadium	BDL	3.2	98.5		BDL	3.2	285	
118	M	Aluminum	23.8 B		42600		124 B		157000	
120	M	Cobalt	5.9 B		27.2 B		BDL	4	54.8	
121	M	Magnesium	2650 B		4240 B		2460 B		7220	
129	M	Calcium	5430		18500		14400		12600	
130	M	Sodium	10200		64800		64300		32900	
131	M	Potassium	1340 B		5330		2750 B		10100	
203	V	Benzene			BDL	5			BDL	5
205	V	Bromoform			BDL	5			BDL	5
206	V	Carbon tetrachloride			BDL	5			BDL	5
207	V	Chlorobenzene			BDL	5			BDL	5
208	V	Dibromochloromethane			BDL	5			BDL	5
209	V	Chloroethane			BDL	10			BDL	10
211	V	Chloroform			BDL	5			BDL	5
212	V	Bromodichloromethane			BDL	5			BDL	5
214	V	1,1-Dichloroethane			BDL	5			BDL	5
215	V	1,2-Dichloroethane			BDL	5			BDL	5
216	V	1,1-Dichloroethene			BDL	5			BDL	5
217	V	1,2-Dichloropropane			BDL	5			BDL	5
218	V	Cis-1,3-Dichloropropene			BDL	5			BDL	5
219	V	Ethylbenzene			BDL	5			BDL	5
220	V	Bromomethane			BDL	10			BDL	10
221	V	Chloromethane			BDL	10			BDL	10
222	V	Methylene chloride			BDL	5			BDL	5
223	V	1,1,2,2-Tetrachloroethane			BDL	5			BDL	5
224	V	Tetrachloroethene			BDL	5			BDL	5
225	V	Toluene			BDL	5			BDL	5
227	V	1,1,1-Trichloroethane			BDL	5			BDL	5
228	V	1,1,2-Trichloroethane			BDL	5			BDL	5
229	V	Trichloroethene			BDL	5			BDL	5
231	V	Vinyl chloride			BDL	10			BDL	10
250	V	Trans-1,3-Dichloropropene			BDL	5			BDL	5
251	V	Styrene			BDL	5			BDL	5
252	V	Acetone			BDL	10			BDL	10
253	V	2-Butanone			BDL	10			BDL	10
254	V	Carbon disulfide			BDL	5			BDL	5
255	V	2-Hexanone			BDL	10			BDL	10
256	V	4-Methyl-2-pentanone			BDL	10			BDL	10
257	V	Vinyl acetate			BDL	10			BDL	10
289	V	Xylenes (Total)			BDL	5			BDL	5
299	V	1,2-Dichloroethene(Total)			3 J				3 J	

CLP TCL/TAL

		SITE	COLLIERVILLE	
		SAMPLE ID	08239161	
		LAB SAMPLE ID	5025.7 D	
		SAMPLING DATE	08/23/91	
		MATRIX	WATER	
CMPD	CL	COMPOUND	ug/l	
101	M	Antimony	BDL	14.3
102	M	Arsenic	BDL	1.2
103	M	Beryllium	BDL	0.6
104	M	Cadmium	BDL	3.2
105	M	Chromium	BDL	3.3
106	M	Copper	9.4 B	
107	M	Lead	2.3 B	
108	M	Mercury	BDL	0.2
109	M	Nickel	BDL	10
110	M	Selenium	BDL	0.5
111	M	Silver	BDL	2.6
112	M	Thallium	BDL	0.6
113	M	Zinc	111	
114	M	Barium	22.8 B	
115	M	Iron	78.1 B	
116	M	Manganese	77.6	
117	M	Vanadium	BDL	3.2
118	M	Aluminum	167 B	
120	M	Cobalt	BDL	4
121	M	Magnesium	1830 B	
129	M	Calcium	5410	
130	M	Sodium	32300	
131	M	Potassium	3300 B	
203	V	Benzene		
205	V	Bromoform		
206	V	Carbon tetrachloride		
207	V	Chlorobenzene		
208	V	Dibromochloromethane		
209	V	Chloroethane		
211	V	Chloroform		
212	V	Bromodichloromethane		
214	V	1,1-Dichloroethane		
215	V	1,2-Dichloroethane		
216	V	1,1-Dichloroethene		
217	V	1,2-Dichloropropane		
218	V	Cis-1,3-Dichloropropene		
219	V	Ethylbenzene		
220	V	Bromomethane		
221	V	Chloromethane		
222	V	Methylene chloride		
223	V	1,1,2,2-Tetrachloroethane		
224	V	Tetrachloroethene		
225	V	Toluene		
227	V	1,1,1-Trichloroethane		
228	V	1,1,2-Trichloroethane		
229	V	Trichloroethene		
231	V	Vinyl chloride		
250	V	Trans-1,3-Dichloropropene		
251	V	Styrene		
252	V	Acetone		
253	V	2-Butanone		
254	V	Carbon disulfide		
255	V	2-Hexanone		
256	V	4-Methyl-2-pentanone		
257	V	Vinyl acetate		
289	V	Xylenes (Total)[3]		
299	V	1,2-Dichloroethene(Total)		

METHOD 8240 RESULTS

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	08209101	08209101DUP	08269105	08219113	08269119
		LAB SAMPLE ID	082091	082091	082691	082191	082691
		SAMPLING DATE	08/20/91	08/20/91	08/26/91	08/21/91	08/26/91
		MATRIX	WATER	WATER	WATER	WATER	WATER
CMPD	CL	COMPOUND	ug/l	ug/l	ug/l	ug/l	ug/l
203	V	Chloromethane	ND	ND	ND	ND	2 J
205	V	Bromomethane	ND	ND	ND	ND	ND
206	V	Vinyl Chloride	ND	ND	ND	ND	ND
207	V	Chloroethane	ND	ND	ND	ND	ND
208	V	Methylene Chloride	ND	ND	2 J	ND	6
209	V	Acetone	ND	ND	ND	31	18
211	V	Carbon Disulfide	ND	ND	ND	ND	ND
212	V	1,1-Dichloroethene	ND	ND	ND	ND	9
214	V	1,1-Dichloroethane	ND	ND	ND	ND	ND
215	V	trans-1,2 Dichloroethene	160	170	280	ND	ND
216	V	Chloroform	ND	ND	ND	ND	ND
217	V	1,2-Dichloroethane	ND	ND	ND	ND	ND
218	V	2-Butanone	ND	ND	ND	ND	ND
219	V	1,1,1-Trichloethane	ND	ND	ND	ND	ND
220	V	Carbon Tetrachloride	ND	ND	ND	ND	ND
221	V	Vinyl Acetate	ND	ND	ND	ND	ND
222	V	Bromodichloromethane	ND	ND	ND	ND	ND
223	V	1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND
224	V	1,2-Dichloropropane	ND	ND	ND	ND	ND
225	V	trans-1,3-Dichloropropene	ND	ND	ND	ND	ND
227	V	Trichloroethene	1200	1400	9100	89	37000
228	V	Dibromochloromethane	ND	ND	ND	ND	ND
229	V	1,1,2-Trichloroethane	ND	ND	ND	ND	ND
231	V	Benzene	ND	ND	ND	ND	ND
250	V	cis-1,3-Dichloropropene	ND	ND	ND	ND	ND
251	V	2-Chloroethyl Vinyl Ether	ND	ND	ND	ND	ND
252	V	Bromoform	ND	ND	ND	ND	ND
253	V	2-Hexanone	ND	ND	ND	ND	ND
254	V	4-Methyl-2-pentanone	ND	ND	ND	ND	ND
255	V	Tretrachloroethene	ND	ND	ND	ND	ND
256	V	Toluene	ND	ND	ND	ND	7
257	V	Chlorobenzene	ND	ND	ND	ND	ND
289	V	Ethyl Benzene	ND	ND	ND	ND	ND
299	V	Stryene	ND	ND	ND	ND	ND
	V	Total Xylenes	ND	ND	ND	ND	ND

*ND – Not detected at or above the method detection limit of 1.0

METHOD 8240 RESULTS

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	08219123	08229127	08219129	08219131	08239135
		LAB SAMPLE ID	082191	082291	082191	082191	082391
		SAMPLING DATE	08/21/91	08/22/91	08/21/91	08/21/91	08/23/91
		MATRIX	WATER	WATER	WATER	WATER	WATER
CMPD	CL	COMPOUND	ug/l	ug/kg	ug/l	ug/l	ug/l
203	V	Chloromethane	ND	ND	ND	ND	ND
205	V	Bromomethane	ND	ND	ND	ND	ND
206	V	Vinyl Chloride	ND	ND	ND	ND	ND
207	V	Chloroethane	ND	ND	ND	ND	ND
208	V	Methylene Chloride	ND	8	3	4 J	11
209	V	Acetone	50	ND	9	ND	ND
211	V	Carbon Disulfide	11	ND	ND	ND	ND
212	V	1,1-Dichloroethene	ND	ND	ND	ND	ND
214	V	1,1-Dichloroethane	ND	ND	ND	ND	ND
215	V	trans-1,2 Dichloroethene	ND	ND	ND	ND	ND
216	V	Chloroform	ND	ND	ND	ND	ND
217	V	1,2-Dichloroethane	ND	ND	ND	ND	ND
218	V	2-Butanone	ND	ND	ND	ND	ND
219	V	1,1,1-Trichloethane	ND	ND	ND	ND	ND
220	V	Carbon Tetrachloride	ND	ND	ND	ND	ND
221	V	Vinyl Acetate	ND	ND	ND	ND	ND
222	V	Bromodichloromethane	ND	ND	ND	ND	ND
223	V	1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND
224	V	1,2-Dichloropropane	ND	ND	ND	ND	ND
225	V	trans-1,3-Dichloropropene	ND	ND	7.4	ND	ND
227	V	Trichloroethene	91	ND	ND	55	ND
228	V	Dibromochloromethane	ND	ND	ND	ND	ND
229	V	1,1,2-Trichloroethane	69	ND	ND	ND	ND
231	V	Benzene	ND	ND	ND	ND	ND
250	V	cis-1,3-Dichloropropene	ND	ND	ND	ND	ND
251	V	2-Chloroethyl Vinyl Ether	ND	ND	ND	ND	ND
252	V	Bromoform	ND	ND	ND	ND	ND
253	V	2-Hexanone	ND	ND	ND	ND	ND
254	V	4-Methyl-2-pentanone	ND	ND	ND	ND	ND
255	V	Tretrachloroethene	ND	ND	ND	ND	ND
256	V	Toluene	ND	ND	ND	ND	ND
257	V	Chlorobenzene	ND	ND	ND	ND	ND
289	V	Ethyl Benzene	ND	ND	ND	ND	ND
299	V	Stryene	ND	ND	ND	ND	ND
	V	Total Xylenes	ND	ND	ND	ND	ND

METHOD 8240 RESULTS

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	08269137	0820911B	082091MS	082091MS-DUP	082091TB
		LAB SAMPLE ID	082691	082091	082091	082091	082091
		SAMPLING DATE	08/26/91	08/20/91	08/20/91	08/20/91	08/20/91
		MATRIX	WATER	WATER	WATER	WATER	WATER
CMPD	CL	COMPOUND	ug/l	ug/l	ug/l	ug/l	ug/l
203	V	Chloromethane	ND	ND	ND	ND	ND
205	V	Bromomethane	ND	ND	ND	ND	ND
206	V	Vinyl Chloride	ND	ND	ND	ND	ND
207	V	Chloroethane	ND	ND	ND	ND	ND
208	V	Methylene Chloride	7	ND	ND	ND	ND
209	V	Acetone	ND	ND	ND	ND	ND
211	V	Carbon Disulfide	ND	ND	ND	ND	ND
212	V	1,1-Dichloroethene	ND	ND	1300	1320	ND
214	V	1,1-Dichloroethane	ND	ND	ND	ND	ND
215	V	trans-1,2 Dichloroethene	37	370	2800	280	ND
216	V	Chloroform	ND	ND	ND	ND	ND
217	V	1,2-Dichloroethane	ND	ND	ND	ND	ND
218	V	2-Butanone	ND	ND	ND	ND	ND
219	V	1,1,1-Trichloethane	ND	ND	ND	ND	ND
220	V	Carbon Tetrachloride	ND	ND	ND	ND	ND
221	V	Vinyl Acetate	ND	ND	ND	ND	ND
222	V	Bromodichloromethane	ND	ND	ND	ND	ND
223	V	1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND
224	V	1,2-Dichloropropane	ND	ND	ND	ND	ND
225	V	trans-1,3-Dichloropropene	ND	ND	ND	ND	ND
227	V	Trichloroethene	730	1800	2600	ND	ND
228	V	Dibromochloromethane	ND	ND	ND	ND	ND
229	V	1,1,2-Trichloroethane	ND	ND	ND	ND	ND
231	V	Benzene	ND	ND	1380	ND	ND
250	V	cis-1,3-Dichloropropene	ND	ND	ND	ND	ND
251	V	2-Chloroethyl Vinyl Ether	ND	ND	ND	ND	ND
252	V	Bromoform	ND	ND	ND	ND	ND
253	V	2-Hexanone	ND	ND	ND	ND	ND
254	V	4-Methyl-2-pentanone	ND	ND	ND	ND	ND
255	V	Tretrachloroethene	ND	ND	ND	ND	ND
256	V	Toluene	ND	ND	1000	ND	ND
257	V	Chlorobenzene	ND	ND	1340	ND	ND
289	V	Ethyl Benzene	ND	ND	ND	ND	ND
299	V	Stryene	ND	ND	ND	ND	ND
	V	Total Xylenes	ND	ND	ND	ND	ND

METHOD 8240 RESULTS

		SITE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	082091RSI	082791RW5
		LAB SAMPLE ID	082091	082791
		SAMPLING DATE	08/20/91	08/27/91
		MATRIX	WATER	WATER
CMPD	CL	COMPOUND	ug/l	ug/l
203	V	Chloromethane	ND	ND
205	V	Bromomethane	ND	ND
206	V	Vinyl Chloride	ND	ND
207	V	Chloroethane	ND	ND
208	V	Methylene Chloride	2	ND
209	V	Acetone	ND	ND
211	V	Carbon Disulfide	ND	ND
212	V	1,1-Dichloroethene	ND	5
214	V	1,1-Dichloroethane	ND	ND
215	V	trans-1,2 Dichloroethene	21	480
216	V	Chloroform	ND	ND
217	V	1,2-Dichloroethane	ND	ND
218	V	2-Butanone	ND	ND
219	V	1,1,1-Trichloethane	ND	ND
220	V	Carbon Tetrachloride	ND	ND
221	V	Vinyl Acetate	ND	ND
222	V	Bromodichloromethane	ND	ND
223	V	1,1,2,2-Tetrachloroethane	ND	ND
224	V	1,2-Dichloropropane	ND	ND
225	V	trans-1,3-Dichloropropene	ND	ND
227	V	Trichloroethene	3200	ND
228	V	Dibromochloromethane	ND	ND
229	V	1,1,2-Trichloroethane	ND	ND
231	V	Benzene	ND	ND
250	V	cis-1,3-Dichloropropene	ND	ND
251	V	2-Chloroethyl Vinyl Ether	ND	ND
252	V	Bromoform	ND	ND
253	V	2-Hexanone	ND	ND
254	V	4-Methyl-2-pentanone	ND	ND
255	V	Tretrachloroethene	ND	ND
256	V	Toluene	5	ND
257	V	Chlorobenzene	ND	ND
289	V	Ethyl Benzene	ND	ND
299	V	Styrene	ND	ND
	V	Total Xylenes	ND	ND

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	082191TB	082191FB	082191FB	082091-FB
		LAB SAMPLE ID	5002.8	5001.0	5001.0 D	4941.0
		SAMPLING DATE	08/21/91	08/21/91	08/21/91	08/20/91
		MATRIX	WATER	WATER	WATER	WATER
CMPD	CL	COMPOUND	ug/l	ug/l	ug/l	ug/l
101	M	Antimony		BDL 14.3	BDL 14.3	BDL 14.3
102	M	Arsenic		BDL 1	BDL 1.2	BDL 1
103	M	Beryllium		BDL 0.6	BDL 0.6	BDL 0.6
104	M	Cadmium		BDL 3.2	BDL 3.2	BDL 3.2
105	M	Chromium		BDL 3.3	BDL 3.3	BDL 3.3
106	M	Copper		3.4 B	2.9 B	3.1 B
107	M	Lead		0.7 B	BDL 0.5	2.9 B
108	M	Mercury		BDL 0.2	BDL 0.2	BDL 0.2
109	M	Nickel		BDL 10	BDL 10	BDL 10
110	M	Selenium		1.4 B	BDL 0.5	BDL 0.5
111	M	Silver		BDL 2.6	BDL 2.6	BDL 2.6
112	M	Thallium		BDL 0.7	BDL 0.6	BDL 0.7
113	M	Zinc		43.6	33.1	92.4
114	M	Barium		5.7 B	5.7 B	4.8 B
115	M	Iron		64.8 B	74.9 B	61.4 B
116	M	Manganese		BDL 1.5	BDL 1.5	BDL 1.5
117	M	Vanadium		BDL 3.2	BDL 3.2	BDL 3.2
118	M	Aluminum		131 B	186 B	176 B
120	M	Cobalt		BDL 4	BDL 4	BDL 4
121	M	Magnesium		71.3 B	75.4 B	54.7 B
129	M	Calcium		303 B	326 B	448 B
130	M	Sodium		2270 B	3310 B	3060 B
131	M	Potassium		BDL 421	542 B	513 B
203	V	Benzene	BDL 5	BDL 5		BDL 5
205	V	Bromoform	BDL 5	BDL 5		BDL 5
206	V	Carbon tetrachloride	BDL 5	BDL 5		BDL 5
207	V	Chlorobenzene	BDL 5	BDL 5		BDL 5
208	V	Dibromochloromethane	BDL 5	BDL 5		BDL 5
209	V	Chloroethane	BDL 10	BDL 10		BDL 10
211	V	Chloroform	BDL 5	BDL 5		BDL 5
212	V	Bromodichloromethane	BDL 5	BDL 5		BDL 5
214	V	1,1-Dichloroethane	BDL 5	BDL 5		BDL 5
215	V	1,2-Dichloroethane	BDL 5	BDL 5		BDL 5
216	V	1,1-Dichloroethene	BDL 5	BDL 5		BDL 5
217	V	1,2-Dichloropropane	BDL 5	BDL 5		BDL 5
218	V	Cis-1,3-Dichloropropene	BDL 5	BDL 5		BDL 5
219	V	Ethylbenzene	BDL 5	BDL 5		BDL 5
220	V	Bromomethane	BDL 10	BDL 10		BDL 10
221	V	Chloromethane	BDL 10	BDL 10		BDL 10
222	V	Methylene chloride	BDL 5	3 J		BDL 5
223	V	1,1,2,2-Tetrachloroethane	BDL 5	BDL 5		BDL 5
224	V	Tetrachloroethene	BDL 5	BDL 5		BDL 5
225	V	Toluene	BDL 5	BDL 5		BDL 5
227	V	1,1,1-Trichloroethane	BDL 5	BDL 5		BDL 5
228	V	1,1,2-Trichloroethane	BDL 5	BDL 5		BDL 5
229	V	Trichloroethene	BDL 5	BDL 5		BDL 5
231	V	Vinyl chloride	BDL 10	BDL 10		BDL 10
250	V	Trans-1,3-Dichloropropene	BDL 5	BDL 5		BDL 5
251	V	Styrene	BDL 5	BDL 5		BDL 5
252	V	Acetone	BDL 10	BDL 10		86 B
253	V	2-Butanone	BDL 10	BDL 10		18
254	V	Carbon disulfide	BDL 5	BDL 5		BDL 5
255	V	2-Hexanone	BDL 10	BDL 10		BDL 10
256	V	4-Methyl-2-pentanone	BDL 10	BDL 10		BDL 10
257	V	Vinyl acetate	BDL 10	BDL 10		BDL 10
289	V	Xylenes (Total)	BDL 5	BDL 5		BDL 5
299	V	1,2-Dichloroethene(Total)	BDL 5	BDL 5		BDL 5

COLLIERVILLE SITE: RESULTS OF THIRD QUARTER GROUNDWATER SAMPLING EVENT: August, 1991

		SITE	COLLIERVILLE		COLLIERVILLE		COLLIERVILLE		COLLIERVILLE	
		SAMPLE ID	082091-FB		082291-FB		082291-FB		082391-FB	
		LAB SAMPLE ID	4941.0 D		5017.6		5017.6 D		5028.1	
		SAMPLING DATE	08/20/91		08/22/91		08/22/91		08/23/91	
		MATRIX	WATER		WATER		WATER		WATER	
CMPD	CL	COMPOUND	ug/l		ug/l		ug/l		ug/l	
101	M	Antimony	BDL	14.3	BDL	14.3	BDL	14.3	BDL	14.3
102	M	Arsenic	BDL	1.2	BDL	1	BDL	1.2	BDL	1.2
103	M	Beryllium	BDL	0.6	BDL	0.6	BDL	0.6	BDL	0.6
104	M	Cadmium	BDL	3.2	BDL	3.2	BDL	3.2	BDL	3.2
105	M	Chromium	BDL	3.3	BDL	3.3	BDL	3.3	BDL	3.3
106	M	Copper	2.6 B		2 B		2.6 B		5.4 B	
107	M	Lead	4.4		1 B		0.6 B		1.6 B	
108	M	Mercury	BDL	0.2	BDL	0.2	BDL	0.2	BDL	0.2
109	M	Nickel	BDL	10	BDL	10	BDL	10	BDL	10
110	M	Selenium	BDL	0.5	1.1 B		BDL	0.5	0.7 B	
111	M	Silver	BDL	2.6	BDL	2.6	BDL	2.6	BDL	2.6
112	M	Thallium	BDL	0.6	BDL	0.7	BDL	0.6	BDL	0.6
113	M	Zinc	330		56		30.7		47.3	
114	M	Barium	5 B		5.2 B		4.3 B		4.1 B	
115	M	Iron	71.7 B		97.8 B		131		171	
116	M	Manganese	BDL	1.5	BDL	1.5	BDL	1.5	BDL	1.5
117	M	Vanadium	BDL	3.2	BDL	3.2	BDL	3.2	BDL	3.2
118	M	Aluminum	141 B		89 B		110 B		105 B	
120	M	Cobalt	BDL	4	BDL	4	BDL	4	BDL	4
121	M	Magnesium	63.2 B		71.9 B		69.7 B		59.4 B	
129	M	Calcium	317 B		315 B		338 B		275 B	
130	M	Sodium	2850 B		1730 B		1890 B		1880 B	
131	M	Potassium	BDL	421	BDL	421	BDL	421	BDL	421
203	V	Benzene			BDL	5			BDL	5
205	V	Bromoform			BDL	5			BDL	5
206	V	Carbon tetrachloride			BDL	5			BDL	5
207	V	Chlorobenzene			BDL	5			BDL	5
208	V	Dibromochloromethane			BDL	5			BDL	5
209	V	Chloroethane			BDL	10			BDL	10
211	V	Chloroform			BDL	5			BDL	5
212	V	Bromodichloromethane			BDL	5			BDL	5
214	V	1,1-Dichloroethane			BDL	5			BDL	5
215	V	1,2-Dichloroethane			BDL	5			BDL	5
216	V	1,1-Dichloroethene			BDL	5			BDL	5
217	V	1,2-Dichloropropane			BDL	5			BDL	5
218	V	Cis-1,3-Dichloropropene			BDL	5			BDL	5
219	V	Ethylbenzene			BDL	5			BDL	5
220	V	Bromomethane			BDL	10			BDL	10
221	V	Chloromethane			BDL	10			BDL	10
222	V	Methylene chloride			10 B				BDL	5
223	V	1,1,2,2-Tetrachloroethane			BDL	5			BDL	5
224	V	Tetrachloroethene			BDL	5			BDL	5
225	V	Toluene			BDL	5			BDL	5
227	V	1,1,1-Trichloroethane			BDL	5			BDL	5
228	V	1,1,2-Trichloroethane			BDL	5			BDL	5
229	V	Trichloroethene			BDL	5			BDL	5
231	V	Vinyl chloride			BDL	10			BDL	10
250	V	Trans-1,3-Dichloropropene			BDL	5			BDL	5
251	V	Styrene			BDL	5			BDL	5
252	V	Acetone			BDL	10			BDL	10
253	V	2-Butanone			BDL	10			BDL	10
254	V	Carbon disulfide			BDL	5			BDL	5
255	V	2-Hexanone			BDL	10			BDL	10
256	V	4-Methyl-2-pentanone			BDL	10			BDL	10
257	V	Vinyl acetate			BDL	10			BDL	10
289	V	Xylenes (Total)			BDL	5			BDL	5
299	V	1,2-Dichloroethene(Total)			BDL	5			BDL	5

COLLIERVILLE SITE: RESULTS OF THIRD QUARTER GROUNDWATER SAMPLING EVENT: August, 1991

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	082391-FB	082291-TB	082391-TB	082991-FB
		LAB SAMPLE ID	5028.1 D	5022.2	5029.0	5247.0
		SAMPLING DATE	08/23/91	08/22/91	08/23/91	08/29/91
		MATRIX	WATER	WATER	WATER	WATER
CMPD	CL	COMPOUND	ug/l	ug/kg	ug/kg	ug/l
101	M	Antimony	BDL 14.3			BDL 14.3
102	M	Arsenic	BDL 1			1.2 B
103	M	Beryllium	BDL 0.6			BDL 0.6
104	M	Cadmium	BDL 3.2			BDL 3.2
105	M	Chromium	BDL 3.3			BDL 3.3
106	M	Copper	2.6 B			3.2 B
107	M	Lead	BDL 0.5			BDL 0.5
108	M	Mercury	BDL 0.2			0.22
109	M	Nickel	BDL 10			BDL 10
110	M	Selenium	BDL 0.5			1.3 B
111	M	Silver	BDL 2.6			BDL 2.6
112	M	Thallium	BDL 0.6			BDL 0.6
113	M	Zinc	30.5			63.1
114	M	Barium	5.2 B			2.4 B
115	M	Iron	44.7 B			70.3 B
116	M	Manganese	BDL 1.5			BDL 1.5
117	M	Vanadium	BDL 3.2			BDL 3.2
118	M	Aluminum	117 B			BDL 23.2
120	M	Cobalt	BDL 4			BDL 4
121	M	Magnesium	52 B			70.2 B
129	M	Calcium	240 B			344 B
130	M	Sodium	1790 B			946 B
131	M	Potassium	BDL 421			BDL 421
203	V	Benzene		BDL 5	BDL 5	BDL 5
205	V	Bromoform		BDL 5	BDL 5	BDL 5
206	V	Carbon tetrachloride		BDL 5	BDL 5	BDL 5
207	V	Chlorobenzene		BDL 5	BDL 5	BDL 5
208	V	Dibromochloromethane		BDL 5	BDL 5	BDL 5
209	V	Chloroethane		BDL 10	BDL 10	BDL 10
211	V	Chloroform		BDL 5	BDL 5	BDL 5
212	V	Bromodichloromethane		BDL 5	BDL 5	BDL 5
214	V	1,1-Dichloroethane		BDL 5	BDL 5	BDL 5
215	V	1,2-Dichloroethane		BDL 5	BDL 5	BDL 5
216	V	1,1-Dichloroethene		BDL 5	BDL 5	BDL 5
217	V	1,2-Dichloropropane		BDL 5	BDL 5	BDL 5
218	V	Cis-1,3-Dichloropropene		BDL 5	BDL 5	BDL 5
219	V	Ethylbenzene		BDL 5	BDL 5	BDL 5
220	V	Bromomethane		BDL 10	BDL 10	BDL 10
221	V	Chloromethane		BDL 10	BDL 10	BDL 10
222	V	Methylene chloride		2 BJ	BDL 5	BDL 5
223	V	1,1,2,2-Tetrachloroethane		BDL 5	BDL 5	BDL 5
224	V	Tetrachloroethene		BDL 5	BDL 5	BDL 5
225	V	Toluene		BDL 5	BDL 5	BDL 5
227	V	1,1,1-Trichloroethane		BDL 5	BDL 5	BDL 5
228	V	1,1,2-Trichloroethane		BDL 5	BDL 5	BDL 5
229	V	Trichloroethene		BDL 5	BDL 5	BDL 5
231	V	Vinyl chloride		BDL 10	BDL 10	BDL 10
250	V	Trans-1,3-Dichloropropene		BDL 5	BDL 5	BDL 5
251	V	Styrene		BDL 5	BDL 5	BDL 5
252	V	Acetone		BDL 10	4 BJ	BDL 10
253	V	2-Butanone		BDL 10	BDL 10	BDL 10
254	V	Carbon disulfide		BDL 5	BDL 5	BDL 5
255	V	2-Hexanone		BDL 10	BDL 10	BDL 10
256	V	4-Methyl-2-pentanone		BDL 10	BDL 10	BDL 10
257	V	Vinyl acetate		BDL 10	BDL 10	BDL 10
289	V	Xylenes (Total)		BDL 5	BDL 5	BDL 5
299	V	1,2-Dichloroethene(Total)		BDL 5	BDL 5	BDL 5

		SITE	COLLIERVILLE		COLLIERVILLE		COLLIERVILLE		COLLIERVILLE	
		SAMPLE ID	082991-FB		083091-FB		083091-FB		083091TB	
		LAB SAMPLE ID	5247.0 D		5251.9		5251.9 D		5254.3	
		SAMPLING DATE	08/29/91		08/30/91		08/30/91		08/30/91	
		MATRIX	WATER		WATER		WATER		WATER	
CMPD	CL	COMPOUND	ug/l		ug/l		ug/l		ug/l	
101	M	Antimony	BDL	14.3	BDL	14.3	BDL	14.3		
102	M	Arsenic	BDL	1.2	BDL	1.2	BDL	1.2		
103	M	Beryllium	BDL	0.6	BDL	0.6	BDL	0.6		
104	M	Cadmium	BDL	3.2	BDL	3.2	BDL	3.2		
105	M	Chromium	BDL	3.3	BDL	3.3	BDL	3.3		
106	M	Copper	4 B		3.8 B		3.7 B			
107	M	Lead			1 B		0.5 B			
108	M	Mercury	BDL	0.2	BDL	0.2	BDL	0.2		
109	M	Nickel	BDL	10	BDL	10	BDL	10		
110	M	Selenium			BDL	0.5				
111	M	Silver	BDL	2.6	BDL	2.6	BDL	2.6		
112	M	Thallium	BDL	0.6	BDL	0.6	0.8 B			
113	M	Zinc	57.6		82.8		429			
114	M	Barium	3.8 B		2.6 B		3.4 B			
115	M	Iron	79.8 B		82.1 B		92.1 B			
116	M	Manganese	BDL	1.5	BDL	1.5	BDL	1.5		
117	M	Vanadium	BDL	3.2	BDL	3.2	BDL	3.2		
118	M	Aluminum	BDL	23.2	BDL	23.2	BDL	23.2		
120	M	Cobalt	BDL	4	BDL	4	BDL	4		
121	M	Magnesium	125 B		64.2 B		88 B			
129	M	Calcium	613 B		560 B		460 B			
130	M	Sodium	1220 B		902 B		1040 B			
131	M	Potassium	BDL	421	BDL	421	BDL	421		
203	V	Benzene			BDL	5			BDL	5
205	V	Bromoform			BDL	5			BDL	5
206	V	Carbon tetrachloride			BDL	5			BDL	5
207	V	Chlorobenzene			BDL	5			BDL	5
208	V	Dibromochloromethane			BDL	5			BDL	5
209	V	Chloroethane			BDL	10			BDL	10
211	V	Chloroform			BDL	5			BDL	5
212	V	Bromodichloromethane			BDL	5			BDL	5
214	V	1,1-Dichloroethane			BDL	5			BDL	5
215	V	1,2-Dichloroethane			BDL	5			BDL	5
216	V	1,1-Dichloroethene			BDL	5			BDL	5
217	V	1,2-Dichloropropane			BDL	5			BDL	5
218	V	Cis-1,3-Dichloropropene			BDL	5			BDL	5
219	V	Ethylbenzene			BDL	5			BDL	5
220	V	Bromomethane			BDL	10			BDL	10
221	V	Chloromethane			BDL	10			BDL	10
222	V	Methylene chloride			BDL	5			10	
223	V	1,1,2,2-Tetrachloroethane			BDL	5			BDL	5
224	V	Tetrachloroethene			BDL	5			BDL	5
225	V	Toluene			BDL	5			BDL	5
227	V	1,1,1-Trichloroethane			BDL	5			BDL	5
228	V	1,1,2-Trichloroethane			BDL	5			BDL	5
229	V	Trichloroethene			BDL	5			BDL	5
231	V	Vinyl chloride			BDL	10			BDL	10
250	V	Trans-1,3-Dichloropropene			BDL	5			BDL	5
251	V	Styrene			BDL	5			BDL	5
252	V	Acetone			8 BJ				14 B	
253	V	2-Butanone			BDL	10			BDL	10
254	V	Carbon disulfide			BDL	5			BDL	5
255	V	2-Hexanone			BDL	10			BDL	10
256	V	4-Methyl-2-pentanone			BDL	10			BDL	10
257	V	Vinyl acetate			BDL	10			BDL	10
289	V	Xylenes (Total)			BDL	5			BDL	5
299	V	1,2-Dichloroethene(Total)			BDL	5			BDL	5

		SITE	COLLIERVILLE		COLLIERVILLE		COLLIERVILLE		COLLIERVILLE	
		SAMPLE ID	082791FB		082791FB		082891FB		082891FB	
		LAB SAMPLE ID	5209.8		5209.8 D		5218.7		5218.7 D	
		SAMPLING DATE	08/27/91		08/27/91		08/28/91		08/28/91	
		MATRIX	WATER		WATER		WATER		WATER	
CMPD	CL	COMPOUND	ug/l		ug/l		ug/l		ug/l	
101	M	Antimony	BDL	14.3	BDL	14.3	BDL	14.3	BDL	14.3
102	M	Arsenic	1.1 B		1.7 B		BDL	1	BDL	1
103	M	Beryllium	BDL	0.6	BDL	0.6	BDL	0.6	BDL	0.6
104	M	Cadmium	BDL	3.2	BDL	3.2	BDL	3.2	BDL	3.2
105	M	Chromium	BDL	9.5	BDL	3.3	BDL	3.3	BDL	3.3
106	M	Copper	3.2 B		3.8 B		3.7 B		8 B	
107	M	Lead	BDL	0.5	0.5 B		BDL	0.5	BDL	0.5
108	M	Mercury	BDL	0.2	BDL	0.2	BDL	0.2	BDL	0.2
109	M	Nickel	BDL	10	BDL	10	BDL	10	BDL	10
110	M	Selenium	BDL	0.5	BDL	0.5	BDL	0.5	BDL	0.5
111	M	Silver	BDL	2.6	BDL	2.6	BDL	2.6	BDL	2.6
112	M	Thallium	BDL	0.6	0.9 B		BDL	0.6	BDL	0.6
113	M	Zinc	14.4 B		12.1 B		16.1 B		17.1 B	
114	M	Barium	3.9 B		3.9 B		5.2 B		3.6 B	
115	M	Iron	60.3 B		75.6 B		87.2 B		80.6 B	
116	M	Manganese	BDL	1.5	BDL	1.5	BDL	1.5	BDL	1.5
117	M	Vanadium	BDL	3.2	BDL	3.2	BDL	3.2	BDL	3.2
118	M	Aluminum	106 B		83.7 B		85.3 B		96.2 B	
120	M	Cobalt	BDL	4	BDL	4	BDL	4	BDL	4
121	M	Magnesium	64 B		60 B		56.8 B		57.1 B	
129	M	Calcium	213 B		229 B		221 B		247 B	
130	M	Sodium	2100 B		1750 B		1820 B		1800 B	
131	M	Potassium	BDL	421	BDL	421	BDL	421	BDL	421
203	V	Benzene	BDL	5			BDL	5		
205	V	Bromoform	BDL	5			BDL	5		
206	V	Carbon tetrachloride	BDL	5			BDL	5		
207	V	Chlorobenzene	BDL	5			BDL	5		
208	V	Dibromochloromethane	BDL	5			BDL	5		
209	V	Chloroethane	BDL	10			BDL	10		
211	V	Chloroform	BDL	5			BDL	5		
212	V	Bromodichloromethane	BDL	5			BDL	5		
214	V	1,1-Dichloroethane	BDL	5			BDL	5		
215	V	1,2-Dichloroethane	BDL	5			BDL	5		
216	V	1,1-Dichloroethene	BDL	5			BDL	5		
217	V	1,2-Dichloropropane	BDL	5			BDL	5		
218	V	Cis-1,3-Dichloropropene	BDL	5			BDL	5		
219	V	Ethylbenzene	BDL	5			BDL	5		
220	V	Bromomethane	BDL	10			BDL	10		
221	V	Chloromethane	BDL	10			BDL	10		
222	V	Methylene chloride	BDL	5			BDL	5		
223	V	1,1,2,2-Tetrachloroethane	BDL	5			BDL	5		
224	V	Tetrachloroethene	BDL	5			BDL	5		
225	V	Toluene	BDL	5			BDL	5		
227	V	1,1,1-Trichloroethane	BDL	5			BDL	5		
228	V	1,1,2-Trichloroethane	BDL	5			BDL	5		
229	V	Trichloroethene	6	5			BDL	5		
231	V	Vinyl chloride	BDL	10			BDL	10		
250	V	Trans-1,3-Dichloropropene	BDL	5			BDL	5		
251	V	Styrene	BDL	5			BDL	5		
252	V	Acetone	BDL	10			BDL	10		
253	V	2-Butanone	BDL	10			BDL	10		
254	V	Carbon disulfide	BDL	5			BDL	5		
255	V	2-Hexanone	BDL	10			BDL	10		
256	V	4-Methyl-2-pentanone	BDL	10			BDL	10		
257	V	Vinyl acetate	BDL	10			BDL	10		
289	V	Xylenes (Total)	BDL	5			BDL	5		
299	V	1,2-Dichloroethene(Total)	BDL	5			BDL	5		

COLLIERVILLE SITE: RESULTS OF THIRD QUARTER GROUNDWATER SAMPLING EVENT: August, 1991

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	082891RB	082891RB	082891TB	082691FB
		LAB SAMPLE ID	5217.9	5217.9 D	5219.5	5094.0
		SAMPLING DATE	08/28/91	08/28/91	08/28/91	08/26/91
		MATRIX	WATER	WATER	WATER	WATER
CMPD	CL	COMPOUND	ug/l	ug/l	ug/l	ug/l
101	M	Antimony	BDL 14.3	BDL 14.3		BDL 14.3
102	M	Arsenic	BDL 1	BDL 1		BDL 1.2
103	M	Beryllium	BDL 0.6	BDL 0.6		BDL 0.6
104	M	Cadmium	BDL 3.2	BDL 3.2		BDL 3.2
105	M	Chromium	BDL 3.3	BDL 3.3		5.5 B
106	M	Copper	2.6 B	4.6 B		6.7 B
107	M	Lead	BDL 0.5	0.8 B		0.5 B
108	M	Mercury	BDL 0.2	BDL 0.2		BDL 0.2
109	M	Nickel	BDL 10	BDL 10		BDL 10
110	M	Selenium	BDL 0.5	1 B		BDL 0.5
111	M	Silver	BDL 2.6	BDL 2.6		BDL 2.6
112	M	Thallium	BDL 0.6	BDL 0.6		BDL 0.6
113	M	Zinc	21.9	42.2		29.2
114	M	Barium	3.7 B	4.9 B		2.7 B
115	M	Iron	82.1 B	86.5 B		103
116	M	Manganese	BDL 1.5	BDL 1.5		BDL 1.5
117	M	Vanadium	BDL 3.2	BDL 3.2		BDL 3.2
118	M	Aluminum	85.1 B	111 B		BDL 23.2
120	M	Cobalt	BDL 4	BDL 4		BDL 4
121	M	Magnesium	42 B	66.6 B		79 B
129	M	Calcium	195 B	276 B		407 B
130	M	Sodium	1620 B	1980 B		1030 B
131	M	Potassium	BDL 421	551 B		BDL 421
203	V	Benzene	BDL 5		BDL 5	BDL 5
205	V	Bromoform	BDL 5		BDL 5	BDL 5
206	V	Carbon tetrachloride	BDL 5		BDL 5	BDL 5
207	V	Chlorobenzene	BDL 5		BDL 5	BDL 5
208	V	Dibromochloromethane	BDL 5		BDL 5	BDL 5
209	V	Chloroethane	BDL 5		BDL 5	BDL 5
211	V	Chloroform	BDL 10		BDL 10	BDL 10
212	V	Bromodichloromethane	BDL 5		BDL 5	BDL 5
214	V	1,1-Dichloroethane	BDL 5		BDL 5	BDL 5
215	V	1,2-Dichloroethane	BDL 5		BDL 5	BDL 5
216	V	1,1-Dichloroethene	BDL 5		BDL 5	BDL 5
217	V	1,2-Dichloropropane	BDL 5		BDL 5	BDL 5
218	V	Cis-1,3-Dichloropropene	BDL 5		BDL 5	BDL 5
219	V	Ethylbenzene	BDL 5		BDL 5	BDL 5
220	V	Bromomethane	BDL 10		BDL 10	BDL 10
221	V	Chloromethane	BDL 10		BDL 10	BDL 10
222	V	Methylene chloride	BDL 5		BDL 5	BDL 5
223	V	1,1,2,2-Tetrachloroethane	BDL 5		BDL 5	BDL 5
224	V	Tetrachloroethene	BDL 5		BDL 5	BDL 5
225	V	Toluene	BDL 5		BDL 5	BDL 5
227	V	1,1,1-Trichloroethane	BDL 5		BDL 5	BDL 5
228	V	1,1,2-Trichloroethane	BDL 5		BDL 5	BDL 5
229	V	Trichloroethene	BDL 5		BDL 5	BDL 5
231	V	Vinyl chloride	BDL 10		BDL 10	BDL 10
250	V	Trans-1,3-Dichloropropene	BDL 5		BDL 5	BDL 5
251	V	Styrene	BDL 5		BDL 5	BDL 5
252	V	Acetone	BDL 10		BDL 10	BDL 10
253	V	2-Butanone	BDL 10		BDL 10	BDL 10
254	V	Carbon disulfide	BDL 5		BDL 5	BDL 5
255	V	2-Hexanone	BDL 10		BDL 10	BDL 10
256	V	4-Methyl-2-pentanone	BDL 10		BDL 10	BDL 10
257	V	Vinyl acetate	BDL 10		BDL 10	BDL 10
289	V	Xylenes (Total)	BDL 5		BDL 5	BDL 5
299	V	1,2-Dichloroethene(Total)	BDL 5		BDL 5	BDL 5

		SITE	COLLIERVILLE		COLLIERVILLE		COLLIERVILLE		COLLIERVILLE	
		SAMPLE ID	082691FB		082691TB		082991MS		082991MSD	
		LAB SAMPLE ID	5094.0 D		5099.0		5250.0		5250.0	
		SAMPLING DATE	08/26/91		08/26/91		08/29/91		08/29/91	
		MATRIX	WATER		WATER		WATER		WATER	
CMPD	CL	COMPOUND	ug/l		ug/l		ug/l		ug/l	
101	M	Antimony	BDL	14.3						
102	M	Arsenic	BDL	1.2						
103	M	Beryllium	BDL	0.6						
104	M	Cadmium	BDL	3.2						
105	M	Chromium	3.3 B							
106	M	Copper	6.4 B							
107	M	Lead	1.5 B							
108	M	Mercury	BDL	0.2						
109	M	Nickel	BDL	10						
110	M	Selenium	1 B							
111	M	Silver	BDL	2.6						
112	M	Thallium	BDL	0.6						
113	M	Zinc	17.2 B							
114	M	Barium	2.4 B							
115	M	Iron	69.5 B							
116	M	Manganese	BDL	1.5						
117	M	Vanadium	BDL	3.2						
118	M	Aluminum	29.7 B							
120	M	Cobalt	BDL	4						
121	M	Magnesium	58.6 B							
129	M	Calcium	479 B							
130	M	Sodium	1050 B							
131	M	Potassium	BDL	421						
203	V	Benzene			BDL	5	50		51	
205	V	Bromoform			BDL	5	BDL	5	BDL	5
206	V	Carbon tetrachloride			BDL	5	BDL	5	BDL	5
207	V	Chlorobenzene			BDL	5	51		51	
208	V	Dibromochloromethane			BDL	5	BDL	5	BDL	5
209	V	Chloroethane			BDL	10	BDL	10	BDL	10
211	V	Chloroform			BDL	5	BDL	5	BDL	5
212	V	Bromodichloromethane			BDL	5	BDL	5	BDL	5
214	V	1,1-Dichloroethane			BDL	5	BDL	5	BDL	5
215	V	1,2-Dichloroethane			BDL	5	BDL	5	BDL	5
216	V	1,1-Dichloroethene			BDL	5	54		52	
217	V	1,2-Dichloropropane			BDL	5	BDL	5	BDL	5
218	V	Cis-1,3-Dichloropropene			BDL	5	BDL	5	BDL	5
219	V	Ethylbenzene			BDL	5	BDL	5	BDL	5
220	V	Bromomethane			BDL	10	BDL	10	BDL	10
221	V	Chloromethane			BDL	10	BDL	10	BDL	10
222	V	Methylene chloride			BDL	5	BDL	5	BDL	5
223	V	1,1,2,2-Tetrachloroethane			BDL	5	BDL	5	BDL	5
224	V	Tetrachloroethene			BDL	5	BDL	5	BDL	5
225	V	Toluene			BDL	5	51		50	
227	V	1,1,1-Trichloroethane			BDL	5	BDL	5	BDL	5
228	V	1,1,2-Trichloroethane			BDL	5	36		36	
229	V	Trichloroethene			BDL	5	48		49	
231	V	Vinyl chloride			BDL	10	BDL	10	BDL	10
250	V	Trans-1,3-Dichloropropene			BDL	5	BDL	5	BDL	5
251	V	Styrene			BDL	5	BDL	5	BDL	5
252	V	Acetone			BDL	10	BDL	10	5 J	
253	V	2-Butanone			BDL	10	BDL	10	BDL	10
254	V	Carbon disulfide			BDL	5	BDL	5	BDL	5
255	V	2-Hexanone			BDL	10	BDL	10	BDL	10
256	V	4-Methyl-2-pentanone			BDL	10	BDL	10	BDL	10
257	V	Vinyl acetate			BDL	10	BDL	10	BDL	10
289	V	Xylenes (Total)			BDL	5	BDL	5	BDL	5
299	V	1,2-Dichloroethene(Total)			BDL	5	BDL	5	BDL	5

NOVEMBER 1991

QUARTERLY GROUNDWATER SAMPLES

CLP TCL/TAL

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	11149133	11149133D	11149147	11149147
		LAB SAMPLE ID	11149133	11149133D	11149147	11149147
		SAMPLING DATE	11/14/91	11/14/91	11/14/91	11/14/91
		MATRIX	WATER	WATER	WATER	WATER
CMPD	CL	COMPOUND	ug/l	ug/l	ug/l	ug/l
101	M	Antimony	BDL 0.8	BDL 0.8	BDL 0.8	BDL 0.8
102	M	Arsenic	1.7 B	BDL 1	1.9 B	BDL 1
103	M	Beryllium	47	BDL 1	4 B	BDL 1
104	M	Cadmium	21	BDL 4	BDL 4	BDL 4
105	M	Chromium	151	BDL 9	97	BDL 9
106	M	Copper	154	BDL 4	78	7 B
107	M	Lead	32.8	BDL 0.6	6.7	0.7 B
108	M	Mercury	7.8	0.4	BDL 0.2	0.2
109	M	Nickel	125	BDL 8	32 B	BDL 8
110	M	Selenium	1.2 B	2.2 B	BDL 1.2	1.2 B
111	M	Silver	BDL 5	BDL 5	BDL 5	BDL 5
112	M	Thallium	1 B	BDL 0.6	0.7 B	BDL 0.6
113	M	Zinc	619	74	1070	904
114	M	Barium	526	33 B	134 B	45 B
115	M	Iron	550000	713	46000	175
116	M	Manganese	6520	23	147	54
117	M	Vanadium	252	BDL 9	108	BDL 9
118	M	Aluminum	79400	132 B	42300	57 B
120	M	Cobalt	240	BDL 10	12 B	BDL 10
121	M	Magnesium	10300	5710	8230	5910
129	M	Calcium	23500	14600	17300	14600
130	M	Sodium	22400	22200	100000	99300
131	M	Potassium	3930 B	629 B	2980 B	834 B
203	V	Benzene	BDL 5		BDL 5	
205	V	Bromoform	BDL 5		BDL 5	
206	V	Carbon tetrachloride	BDL 5		BDL 5	
207	V	Chlorobenzene	BDL 5		BDL 5	
208	V	Dibromochloromethane	BDL 5		BDL 5	
209	V	Chloroethane	BDL 10		BDL 10	
211	V	Chloroform	BDL 5		BDL 5	
212	V	Bromodichloromethane	BDL 5		BDL 5	
214	V	1,1-Dichloroethane	BDL 5		BDL 5	
215	V	1,2-Dichloroethane	BDL 5		BDL 5	
216	V	1,1-Dichloroethene	BDL 5		BDL 5	
217	V	1,2-Dichloropropane	BDL 5		BDL 5	
218	V	Cis-1,3-Dichloropropene	BDL 5		BDL 5	
219	V	Ethylbenzene	BDL 5		BDL 5	
220	V	Bromomethane	BDL 10		BDL 10	
221	V	Chloromethane	BDL 10		BDL 10	
222	V	Methylene chloride	BDL 5		BDL 5	
223	V	1,1,2,2-Tetrachloroethane	BDL 5		BDL 5	
224	V	Tetrachloroethene	BDL 5		BDL 5	
225	V	Toluene	BDL 5		BDL 5	
227	V	1,1,1-Trichloroethane	BDL 5		BDL 5	
228	V	1,1,2-Trichloroethane	BDL 5		BDL 5	
229	V	Trichloroethene	BDL 5		BDL 5	
231	V	Vinyl chloride	BDL 10		BDL 10	
250	V	Trans-1,3-Dichloropropene	BDL 5		BDL 5	
251	V	Styrene	BDL 5		BDL 5	
252	V	Acetone	BDL 10		62	
253	V	2-Butanone	BDL 10		BDL 10	
254	V	Carbon disulfide	BDL 5		BDL 5	
255	V	2-Hexanone	BDL 10		BDL 10	
256	V	4-Methyl-2-pentanone	BDL 10		BDL 10	
257	V	Vinyl acetate	BDL 10		BDL 10	
289	V	Xylenes (Total)	BDL 5		BDL 5	
299	V	1,2-Dichloroethene(Total)	BDL 5		BDL 5	

CLP TCL/TAL

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	11159153	11189157	11189157D	11189158
		LAB SAMPLE ID	11159153	11189157	11189157D	11189158
		SAMPLING DATE	11/15/91	11/18/91	11/18/91	11/18/91
		MATRIX	WATER	WATER	WATER	WATER
CMPD	CL	COMPOUND	ug/l	ug/l	ug/l	ug/l
101	M	Antimony		BDL 0.8	0.8 B	0.9 B
102	M	Arsenic		1.7 B	BDL 1.4	BDL 1.4
103	M	Beryllium		15	BDL 1	BDL 1
104	M	Cadmium		5	BDL 4	BDL 4
105	M	Chromium		137	BDL 9	BDL 9
106	M	Copper		143	4 B	13 B
107	M	Lead		32.2	1.1 B	0.7 B
108	M	Mercury		0.3	0.2	0.2
109	M	Nickel		87	BDL 8	11 B
110	M	Selenium		BDL 6	BDL 1.2	BDL 1.2
111	M	Silver		BDL 5	BDL 5	BDL 5
112	M	Thallium		BDL 0.5	BDL 0.5	BDL 0.5
113	M	Zinc		217	62	32
114	M	Barium		517	91 B	64 B
115	M	Iron		135000	166	394
116	M	Manganese		930	142	81
117	M	Vanadium		156	BDL 9	9 B
118	M	Aluminum		51000	99 B	182 B
120	M	Cobalt		24 B	BDL 10	BDL 10
121	M	Magnesium		11500	4670 B	2250 B
129	M	Calcium		17400	11300	4430 B
130	M	Sodium		48100	46500	9310
131	M	Potassium		6470	1430 B	1180 B
203	V	Benzene	BDL 5	BDL 5		BDL 5
205	V	Bromoform	BDL 5	BDL 5		BDL 5
206	V	Carbon tetrachloride	BDL 5	BDL 5		BDL 5
207	V	Chlorobenzene	BDL 5	BDL 5		BDL 5
208	V	Dibromochloromethane	BDL 5	BDL 5		BDL 5
209	V	Chloroethane	BDL 10	BDL 10		BDL 10
211	V	Chloroform	BDL 5	BDL 5		BDL 5
212	V	Bromodichloromethane	BDL 5	BDL 5		BDL 5
214	V	1,1-Dichloroethane	BDL 5	BDL 5		BDL 5
215	V	1,2-Dichloroethane	BDL 5	BDL 5		BDL 5
216	V	1,1-Dichloroethene	BDL 5	BDL 5		BDL 5
217	V	1,2-Dichloropropane	BDL 5	BDL 5		BDL 5
218	V	Cis-1,3-Dichloropropene	BDL 5	BDL 5		BDL 5
219	V	Ethylbenzene	BDL 5	BDL 5		BDL 5
220	V	Bromomethane	BDL 10	BDL 10		BDL 10
221	V	Chloromethane	BDL 10	BDL 10		BDL 10
222	V	Methylene chloride	BDL 5	BDL 5		BDL 5
223	V	1,1,2,2-Tetrachloroethane	BDL 5	BDL 5		BDL 5
224	V	Tetrachloroethene	BDL 5	BDL 5		BDL 5
225	V	Toluene	BDL 5	BDL 5		BDL 5
227	V	1,1,1-Trichloroethane	BDL 5	BDL 5		BDL 5
228	V	1,1,2-Trichloroethane	BDL 5	BDL 5		BDL 5
229	V	Trichloroethene	BDL 5	57		BDL 5
231	V	Vinyl chloride	BDL 10	BDL 10		BDL 10
250	V	Trans-1,3-Dichloropropene	BDL 5	BDL 5		BDL 5
251	V	Styrene	BDL 5	BDL 5		BDL 5
252	V	Acetone	BDL 10	BDL 10		BDL 10
253	V	2-Butanone	BDL 10	BDL 10		BDL 10
254	V	Carbon disulfide	BDL 5	BDL 5		BDL 5
255	V	2-Hexanone	BDL 10	BDL 10		BDL 10
256	V	4-Methyl-2-pentanone	BDL 10	BDL 10		BDL 10
257	V	Vinyl acetate	BDL 10	BDL 10		BDL 10
289	V	Xylenes (Total)	BDL 5	BDL 5		BDL 5
299	V	1,2-Dichloroethene(Total)	BDL 5	BDL 5		BDL 5

CLP TCL/TAL

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	11189158D	11129159	11129159D	11139161
		LAB SAMPLE ID	11189158D	11129159	11129159D	11139161
		SAMPLING DATE	11/18/91	11/12/91	11/12/91	11/13/91
		MATRIX	WATER	WATER	WATER	WATER
CMPD	CL	COMPOUND	ug/l	ug/l	ug/l	ug/kg
101	M	Antimony	BDL 0.8	BDL 0.8	BDL 0.8	BDL 0.8
102	M	Arsenic	BDL 1.4	1.1 B	BDL 1	2.9 B
103	M	Beryllium	BDL 1	22	BDL 1	3 B
104	M	Cadmium	BDL 4	10	BDL 4	BDL 4
105	M	Chromium	BDL 9	166	BDL 9	33
106	M	Copper	14 B	258	11 B	109
107	M	Lead	0.6 B	27.3	0.77 B	8.7
108	M	Mercury	BDL 0.2	BDL 0.2	BDL 0.2	BDL 0.2
109	M	Nickel	12 B	101	BDL 8	27 B
110	M	Selenium	BDL 1.2	1.2 B	BDL 1.2	BDL 1.2
111	M	Silver	6 B	BDL 5	BDL 5	BDL 5
112	M	Thallium	BDL 0.5	BDL 0.6	BDL 0.6	BDL 0.6
113	M	Zinc	36	253	50	134
114	M	Barium	65 B	300	27 B	98 B
115	M	Iron	192	210000	309	32300
116	M	Manganese	77	1860	16	538
117	M	Vanadium	BDL 9	242	BDL 9	53
118	M	Aluminum	60 B	93600	125 B	26700
120	M	Cobalt	BDL 10	63	BDL 10	BDL 10
121	M	Magnesium	2350 B	5610	2020 B	2370 B
129	M	Calcium	4550 B	22300	14300	5650
130	M	Sodium	9820	55100	54000	28800
131	M	Potassium	1030 B	6270	2300 B	2590 B
203	V	Benzene		BDL 5		BDL 5
205	V	Bromoform		BDL 5		BDL 5
206	V	Carbon tetrachloride		BDL 5		BDL 5
207	V	Chlorobenzene		BDL 5		BDL 5
208	V	Dibromochloromethane		BDL 5		BDL 5
209	V	Chloroethane		BDL 10		BDL 10
211	V	Chloroform		BDL 5		BDL 5
212	V	Bromodichloromethane		BDL 5		BDL 5
214	V	1,1-Dichloroethane		BDL 5		BDL 5
215	V	1,2-Dichloroethane		BDL 5		BDL 5
216	V	1,1-Dichloroethene		BDL 5		BDL 5
217	V	1,2-Dichloropropane		BDL 5		BDL 5
218	V	Cis-1,3-Dichloropropene		BDL 5		BDL 5
219	V	Ethylbenzene		BDL 5		BDL 5
220	V	Bromomethane		BDL 10		BDL 10
221	V	Chloromethane		BDL 10		BDL 10
222	V	Methylene chloride		BDL 5		BDL 5
223	V	1,1,2,2-Tetrachloroethane		BDL 5		BDL 5
224	V	Tetrachloroethene		BDL 5		BDL 5
225	V	Toluene		BDL 5		BDL 5
227	V	1,1,1-Trichloroethane		BDL 5		BDL 5
228	V	1,1,2-Trichloroethane		BDL 5		BDL 5
229	V	Trichloroethene		BDL 5		BDL 5
231	V	Vinyl chloride		BDL 10		BDL 10
250	V	Trans-1,3-Dichloropropene		BDL 5		BDL 5
251	V	Styrene		BDL 5		BDL 5
252	V	Acetone		BDL 10		BDL 10
253	V	2-Butanone		BDL 10		BDL 10
254	V	Carbon disulfide		BDL 5		BDL 5
255	V	2-Hexanone		BDL 10		BDL 10
256	V	4-Methyl-2-pentanone		BDL 10		BDL 10
257	V	Vinyl acetate		BDL 10		BDL 10
289	V	Xylenes (Total)		BDL 5		BDL 5
299	V	1,2-Dichloroethene(Total)		BDL 5		BDL 5

			CLP TCL/TAL	
		SITE	COLLIERVILLE	
		SAMPLE ID	11139161D	
		LAB SAMPLE ID	11139161D	
		SAMPLING DATE	11/13/91	
		MATRIX	WATER	
CMPD	CL	COMPOUND	ug/kg	
101	M	Antimony	BDL	0.8
102	M	Arsenic	BDL	1
103	M	Beryllium	BDL	1
104	M	Cadmium	BDL	4
105	M	Chromium	BDL	9
106	M	Copper	18 B	
107	M	Lead	BDL	0.6
108	M	Mercury	BDL	0.2
109	M	Nickel	BDL	8
110	M	Selenium	BDL	1.2
111	M	Silver	BDL	5
112	M	Thallium	BDL	0.6
113	M	Zinc	75	
114	M	Barium	17 B	
115	M	Iron	120	
116	M	Manganese	38	
117	M	Vanadium	BDL	9
118	M	Aluminum	BDL	44
120	M	Cobalt	BDL	10
121	M	Magnesium	1390 B	
129	M	Calcium	4680 B	
130	M	Sodium	29400	
131	M	Potassium	1320 B	
203	V	Benzene		
205	V	Bromoform		
206	V	Carbon tetrachloride		
207	V	Chlorobenzene		
208	V	Dibromochloromethane		
209	V	Chloroethane		
211	V	Chloroform		
212	V	Bromodichloromethane		
214	V	1,1-Dichloroethane		
215	V	1,2-Dichloroethane		
216	V	1,1-Dichloroethene		
217	V	1,2-Dichloropropane		
218	V	Cis-1,3-Dichloropropene		
219	V	Ethylbenzene		
220	V	Bromomethane		
221	V	Chloromethane		
222	V	Methylene chloride		
223	V	1,1,2,2-Tetrachloroethane		
224	V	Tetrachloroethene		
225	V	Toluene		
227	V	1,1,1-Trichloroethane		
228	V	1,1,2-Trichloroethane		
229	V	Trichloroethene		
231	V	Vinyl chloride		
250	V	Trans-1,3-Dichloropropene		
251	V	Styrene		
252	V	Acetone		
253	V	2-Butanone		
254	V	Carbon disulfide		
255	V	2-Hexanone		
256	V	4-Methyl-2-pentanone		
257	V	Vinyl acetate		
289	V	Xylenes (Total)		
299	V	1,2-Dichloroethene(Total)		

COLLIERVILLE SITE: RESULTS OF FOURTH QUARTER GROUNDWATER SAMPLING EVENT; NOVEMBER 1991

CLP TCL/TAL

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	111891105	111891105D	111891110	111891110	111891110D
		LAB SAMPLE ID	111891105	111891105D	111891110	111891110	111891110D
		SAMPLING DATE	11/18/91	11/18/91	11/18/91	11/18/91	11/18/91
		MATRIX	WATER	WATER	WATER	WATER	WATER
CMPD	CL	COMPOUND	ug/l	ug/l	ug/l	ug/l	ug/l
101	M	Antimony	0.8 B	BDL 0.8	BDL 0.8	BDL 0.8	BDL 0.8
102	M	Arsenic	BDL 1.4	BDL 1.4	BDL 1.4	BDL 1.4	BDL 1.4
103	M	Beryllium	BDL 1	BDL 1	BDL 1	BDL 1	BDL 1
104	M	Cadmium	BDL 4	BDL 4	BDL 4	BDL 4	BDL 4
105	M	Chromium	22	20	BDL 9	BDL 9	BDL 9
106	M	Copper	8 B	6 B	46	22 B	22 B
107	M	Lead	0.8 B	BDL 0.5	87	4.9	4.9
108	M	Mercury	0.2	BDL 0.2	0.2	BDL 0.2	BDL 0.2
109	M	Nickel	BDL 8	BDL 8	BDL 8	BDL 8	BDL 8
110	M	Selenium	BDL 1.2	BDL 1.2	BDL 1.2	BDL 1.2	BDL 1.2
111	M	Silver	BDL 5	5 B	6 B	9 B	9 B
112	M	Thallium	BDL 0.5	BDL 0.5	BDL 0.5	BDL 0.5	BDL 0.5
113	M	Zinc	71	81	45	43	43
114	M	Barium	13 B	13 B	30 B	31 B	31 B
115	M	Iron	103	73 B	114	93 B	93 B
116	M	Manganese	2 B	2 B	3 B	2 B	2 B
117	M	Vanadium	10 B	BDL 9	9 B	BDL 9	BDL 9
118	M	Aluminum	830	56 B	BDL 44	BDL 44	BDL 44
120	M	Cobalt	BDL 10	BDL 10	BDL 10	BDL 10	BDL 10
121	M	Magnesium	830 B	825 B	2910 B	2950 B	2950 B
129	M	Calcium	6380	6490	8240	8370	8370
130	M	Sodium	6230	6360	20100	21000	21000
131	M	Potassium	781 B	787 B	973 B	951 B	951 B
203	V	Benzene	BDL 5		BDL 5		
205	V	Bromoform	BDL 5		BDL 5		
206	V	Carbon tetrachloride	BDL 5		BDL 5		
207	V	Chlorobenzene	BDL 5		BDL 5		
208	V	Dibromochloromethane	BDL 5		BDL 5		
209	V	Chloroethane	BDL 10		BDL 10		
211	V	Chloroform	BDL 5		BDL 5		
212	V	Bromodichloromethane	BDL 5		BDL 5		
214	V	1,1-Dichloroethane	BDL 5		BDL 5		
215	V	1,2-Dichloroethane	BDL 5		BDL 5		
216	V	1,1-Dichloroethene	BDL 5		BDL 5		
217	V	1,2-Dichloropropane	BDL 5		BDL 5		
218	V	Cis-1,3-Dichloropropene	BDL 5		BDL 5		
219	V	Ethylbenzene	BDL 5		BDL 5		
220	V	Bromomethane	BDL 10		BDL 10		
221	V	Chloromethane	BDL 10		BDL 10		
222	V	Methylene chloride	BDL 5		BDL 5		
223	V	1,1,2,2-Tetrachloroethane	BDL 5		BDL 5		
224	V	Tetrachloroethene	BDL 5		BDL 5		
225	V	Toluene	BDL 5		BDL 5		
227	V	1,1,1-Trichloroethane	BDL 5		BDL 5		
228	V	1,1,2-Trichloroethane	BDL 5		BDL 5		
229	V	Trichloroethene	BDL 5		BDL 5		
231	V	Vinyl chloride	BDL 10		BDL 10		
250	V	Trans-1,3-Dichloropropene	BDL 5		BDL 5		
251	V	Styrene	BDL 5		BDL 5		
252	V	Acetone	BDL 10		BDL 10		
253	V	2-Butanone	BDL 10		BDL 10		
254	V	Carbon disulfide	BDL 5		BDL 5		
255	V	2-Hexanone	BDL 10		BDL 10		
256	V	4-Methyl-2-pentanone	BDL 10		BDL 10		
257	V	Vinyl acetate	BDL 10		BDL 10		
289	V	Xylenes (Total)	BDL 5		BDL 5		
299	V	1,2-Dichloroethene(Total)	BDL 5		BDL 5		

CLP TCL/TAL

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	111291FB	111291FBD	111391FB	111391FBD
		LAB SAMPLE ID	111291FB	111291FBD	111391FB	111391FBD
		SAMPLING DATE	11/12/91	11/12/91	11/13/91	11/13/91
		MATRIX	WATER	WATER	WATER	WATER
CMPD	CL	COMPOUND	ug/l	ug/l	ug/l	ug/l
101	M	Antimony	BDL 0.8	BDL 0.8	BDL 0.8	BDL 0.8
102	M	Arsenic	BDL 1	BDL 1	BDL 1	BDL 1
103	M	Beryllium	BDL 1	BDL 1	BDL 1	BDL 1
104	M	Cadmium	BDL 4	BDL 4	BDL 4	BDL 4
105	M	Chromium	BDL 9	BDL 9	BDL 9	BDL 9
106	M	Copper	BDL 4	5 B	BDL 4	BDL 4
107	M	Lead	BDL 0.6	BDL 0.6	0.72 B	BDL 0.6
108	M	Mercury	BDL 0.2	BDL 0.2	BDL 0.2	BDL 0.2
109	M	Nickel	BDL 8	BDL 8	BDL 8	BDL 8
110	M	Selenium	BDL 1.2	BDL 1.2	BDL 1.2	BDL 1.2
111	M	Silver	BDL 5	BDL 5	BDL 5	BDL 5
112	M	Thallium	BDL 0.6	BDL 0.6	BDL 0.6	BDL 0.6
113	M	Zinc	25	31	30	36
114	M	Barium	1 B	1 B	1 B	1 B
115	M	Iron	21 B	BDL 18	BDL 18	BDL 18
116	M	Manganese	BDL 2	BDL 2	BDL 2	BDL 2
117	M	Vanadium	BDL 9	BDL 9	BDL 9	BDL 9
118	M	Aluminum	BDL 44	BDL 44	BDL 44	BDL 44
120	M	Cobalt	BDL 10	BDL 10	BDL 10	BDL 10
121	M	Magnesium	BDL 90	BDL 90	BDL 90	BDL 90
129	M	Calcium	373 B	467 B	409 B	437 B
130	M	Sodium	273 B	285 B	229 B	288 B
131	M	Potassium	BDL 350	BDL 350	BDL 350	BDL 350
203	V	Benzene	BDL 5		BDL 5	
205	V	Bromoform	BDL 5		BDL 5	
206	V	Carbon tetrachloride	BDL 5		BDL 5	
207	V	Chlorobenzene	BDL 5		BDL 5	
208	V	Dibromochloromethane	BDL 5		BDL 5	
209	V	Chloroethane	BDL 10		BDL 10	
211	V	Chloroform	BDL 5		BDL 5	
212	V	Bromodichloromethane	BDL 5		BDL 5	
214	V	1,1-Dichloroethane	BDL 5		BDL 5	
215	V	1,2-Dichloroethane	BDL 5		BDL 5	
216	V	1,1-Dichloroethene	BDL 5		BDL 5	
217	V	1,2-Dichloropropane	BDL 5		BDL 5	
218	V	Cis-1,3-Dichloropropene	BDL 5		BDL 5	
219	V	Ethylbenzene	BDL 5		BDL 5	
220	V	Bromomethane	BDL 10		BDL 10	
221	V	Chloromethane	BDL 10		BDL 10	
222	V	Methylene chloride	BDL 5		BDL 5	
223	V	1,1,2,2-Tetrachloroethane	BDL 5		BDL 5	
224	V	Tetrachloroethene	BDL 5		BDL 5	
225	V	Toluene	BDL 5		BDL 5	
227	V	1,1,1-Trichloroethane	BDL 5		BDL 5	
228	V	1,1,2-Trichloroethane	BDL 5		BDL 5	
229	V	Trichloroethene	BDL 5		BDL 5	
231	V	Vinyl chloride	BDL 10		BDL 10	
250	V	Trans-1,3-Dichloropropene	BDL 5		BDL 5	
251	V	Styrene	BDL 5		BDL 5	
252	V	Acetone	BDL 10		17	
253	V	2-Butanone	BDL 10		BDL 10	
254	V	Carbon disulfide	BDL 5		BDL 5	
255	V	2-Hexanone	BDL 10		BDL 10	
256	V	4-Methyl-2-pentanone	BDL 10		BDL 10	
257	V	Vinyl acetate	BDL 10		BDL 10	
289	V	Xylenes (Total)	BDL 5		BDL 5	
299	V	1,2-Dichloroethene(Total)	BDL 5		BDL 5	

CLP TCL/TAL

SITE			COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
SAMPLE ID			111491FB	111491FBD	111591FB	111591FBD
LAB SAMPLE ID			111491FB	111491FBD	111591FB	111591FBD
SAMPLING DATE			11/14/91	11/14/91	11/15/91	11/15/91
MATRIX			WATER	WATER	WATER	WATER
CMPD	CL	COMPOUND	ug/l	ug/l	ug/l	ug/l
101	M	Antimony	BDL 0.8	BDL 0.8	BDL 0.8	BDL 0.8
102	M	Arsenic	BDL 1	BDL 1	BDL 1	BDL 1
103	M	Beryllium	BDL 1	BDL 1	BDL 1	BDL 1
104	M	Cadmium	BDL 4	BDL 4	BDL 4	BDL 4
105	M	Chromium	BDL 9	BDL 9	BDL 9	BDL 9
106	M	Copper	BDL 4	BDL 4	5 B	5 B
107	M	Lead	BDL 0.6	19	0.7 B	18.1
108	M	Mercury	BDL 0.2	BDL 0.2	BDL 0.2	BDL 0.2
109	M	Nickel	BDL 8	BDL 8	BDL 8	BDL 8
110	M	Selenium	BDL 1.2	BDL 1.2	BDL 1.2	BDL 1.2
111	M	Silver	BDL 5	BDL 5	BDL 5	BDL 5
112	M	Thallium	BDL 0.6	0.6 B	BDL 0.6	BDL 0.6
113	M	Zinc	32	32	50	38
114	M	Barium	1 B	1 B	2 B	1 B
115	M	Iron	134	69 B	116	72 B
116	M	Manganese	BDL 2	BDL 2	BDL 2	BDL 2
117	M	Vanadium	BDL 9	BDL 9	BDL 9	BDL 9
118	M	Aluminum	BDL 44	BDL 44	BDL 44	BDL 44
120	M	Cobalt	BDL 10	BDL 10	BDL 10	BDL 10
121	M	Magnesium	BDL 90	BDL 90	BDL 90	BDL 90
129	M	Calcium	408 B	388 B	444 B	373 B
130	M	Sodium	283 B	223 B	256 B	194 B
131	M	Potassium	390 B	BDL 350	BDL 350	BDL 350
203	V	Benzene	BDL 5		BDL 5	
205	V	Bromoform	BDL 5		BDL 5	
206	V	Carbon tetrachloride	BDL 5		BDL 5	
207	V	Chlorobenzene	BDL 5		BDL 5	
208	V	Dibromochloromethane	BDL 5		BDL 5	
209	V	Chloroethane	BDL 10		BDL 10	
211	V	Chloroform	BDL 5		BDL 5	
212	V	Bromodichloromethane	BDL 5		BDL 5	
214	V	1,1-Dichloroethane	BDL 5		BDL 5	
215	V	1,2-Dichloroethane	BDL 5		BDL 5	
216	V	1,1-Dichloroethene	BDL 5		BDL 5	
217	V	1,2-Dichloropropane	BDL 5		BDL 5	
218	V	Cis-1,3-Dichloropropene	BDL 5		BDL 5	
219	V	Ethylbenzene	BDL 5		BDL 5	
220	V	Bromomethane	BDL 10		BDL 10	
221	V	Chloromethane	BDL 10		BDL 10	
222	V	Methylene chloride	BDL 5		BDL 5	
223	V	1,1,2,2-Tetrachloroethane	BDL 5		BDL 5	
224	V	Tetrachloroethene	BDL 5		BDL 5	
225	V	Toluene	BDL 5		BDL 5	
227	V	1,1,1-Trichloroethane	BDL 5		BDL 5	
228	V	1,1,2-Trichloroethane	BDL 5		BDL 5	
229	V	Trichloroethene	BDL 5		BDL 5	
231	V	Vinyl chloride	BDL 10		BDL 10	
250	V	Trans-1,3-Dichloropropene	BDL 5		BDL 5	
251	V	Styrene	BDL 5		BDL 5	
252	V	Acetone	BDL 10		10 J	
253	V	2-Butanone	BDL 10		BDL 10	
254	V	Carbon disulfide	BDL 5		BDL 5	
255	V	2-Hexanone	BDL 10		BDL 10	
256	V	4-Methyl-2-pentanone	BDL 10		BDL 10	
257	V	Vinyl acetate	BDL 10		BDL 5	
289	V	Xylenes (Total)	BDL 5		BDL 5	
299	V	1,2-Dichloroethene(Total)	BDL 5			

CLP TCL/TAL

		SITE	COLLIERVILLE		COLLIERVILLE		COLLIERVILLE		COLLIERVILLE	
		SAMPLE ID	111891FB		111891FBD		111991FB		111991FBD	
		LAB SAMPLE ID	111891FB		111891FBD		111991FB		111991FBD	
		SAMPLING DATE	11/18/91		11/18/91		11/19/91		11/19/91	
		MATRIX	WATER		WATER		WATER		WATER	
CMPD	CL	COMPOUND	ug/kg		ug/kg		ug/kg		ug/kg	
101	M	Antimony	BDL	0.8	BDL	0.8	BDL	0.8	BDL	0.8
102	M	Arsenic	BDL	1.4	BDL	1.4	BDL	1.4	BDL	1.4
103	M	Beryllium	BDL	1	BDL	1	BDL	1	BDL	1
104	M	Cadmium	BDL	4	BDL	4	BDL	4	BDL	4
105	M	Chromium	BDL	9	BDL	9	BDL	9	BDL	9
106	M	Copper	7 B		4 B		BDL	4	BDL	4
107	M	Lead	1.3 B		BDL	0.5	0.8 B		BDL	0.5
108	M	Mercury	BDL	0.2	BDL	0.2	BDL	0.2	BDL	0.2
109	M	Nickel	BDL	8	BDL	8	BDL	8	BDL	8
110	M	Selenium	BDL	1.2	BDL	1.2	BDL	1.2	BDL	1.2
111	M	Silver	5 B		BDL	5	7 B		5 B	
112	M	Thallium	BDL	0.5	BDL	0.5	BDL	0.5	BDL	0.5
113	M	Zinc	35		39		31		34	
114	M	Barium	5 B		5 B		5 B		4 B	
115	M	Iron	59 B		60 B		107		59 B	
116	M	Manganese	BDL	2	BDL	2	BDL	2	BDL	2
117	M	Vanadium	BDL	9	BDL	9	BDL	9	BDL	9
118	M	Aluminum	BDL	44	BDL	44	88 B		BDL	44
120	M	Cobalt	BDL	10	BDL	10	BDL	10	BDL	10
121	M	Magnesium	123 B		BDL	90	BDL	90	BDL	90
129	M	Calcium	349 B		393 B		343 B		358 B	
130	M	Sodium	873 B		829 B		792 B		629 B	
131	M	Potassium	BDL	350	BDL	350	BDL	350	BDL	350
203	V	Benzene	BDL	5			BDL	5		
205	V	Bromoform	BDL	5			BDL	5		
206	V	Carbon tetrachloride	BDL	5			BDL	5		
207	V	Chlorobenzene	BDL	5			BDL	5		
208	V	Dibromochloromethane	BDL	5			BDL	5		
209	V	Chloroethane	BDL	10			BDL	10		
211	V	Chloroform	BDL	5			BDL	5		
212	V	Bromodichloromethane	BDL	5			BDL	5		
214	V	1,1-Dichloroethane	BDL	5			BDL	5		
215	V	1,2-Dichloroethane	BDL	5			BDL	5		
216	V	1,1-Dichloroethene	BDL	5			BDL	5		
217	V	1,2-Dichloropropane	BDL	5			BDL	5		
218	V	Cis-1,3-Dichloropropene	BDL	5			BDL	5		
219	V	Ethylbenzene	BDL	5			BDL	5		
220	V	Bromomethane	BDL	10			BDL	10		
221	V	Chloromethane	BDL	10			BDL	10		
222	V	Methylene chloride	BDL	5			6 B			
223	V	1,1,2,2-Tetrachloroethane	BDL	5			BDL	5		
224	V	Tetrachloroethene	BDL	5			BDL	5		
225	V	Toluene	BDL	5			BDL	5		
227	V	1,1,1-Trichloroethane	BDL	5			BDL	5		
228	V	1,1,2-Trichloroethane	BDL	5			BDL	5		
229	V	Trichloroethene	BDL	5			3 BJ			
231	V	Vinyl chloride	BDL	10			BDL	10		
250	V	Trans-1,3-Dichloropropene	BDL	5			BDL	5		
251	V	Styrene	BDL	5			BDL	5		
252	V	Acetone	10 J				BDL	10		
253	V	2-Butanone	BDL	10			BDL	10		
254	V	Carbon disulfide	BDL	5			BDL	5		
255	V	2-Hexanone	BDL	10			BDL	10		
256	V	4-Methyl-2-pentanone	BDL	10			BDL	10		
257	V	Vinyl acetate	BDL	10			BDL	10		
289	V	Xylenes (Total)	BDL	5			BDL	5		
299	V	1,2-Dichloroethene(Total)	BDL	5			BDL	5		

CLP TCL/TAL

		SITE	COLLIERVILLE		COLLIERVILLE	
		SAMPLE ID	111391TB		111591TB	
		LAB SAMPLE ID	111391TB		111591TB	
		SAMPLING DATE	11/13/91		11/15/91	
		MATRIX	WATER		WATER	
CMPD	CL	COMPOUND	ug/l		ug/l	
101	M	Antimony				
102	M	Arsenic				
103	M	Beryllium				
104	M	Cadmium				
105	M	Chromium				
106	M	Copper				
107	M	Lead				
108	M	Mercury				
109	M	Nickel				
110	M	Selenium				
111	M	Silver				
112	M	Thallium				
113	M	Zinc				
114	M	Barium				
115	M	Iron				
116	M	Manganese				
117	M	Vanadium				
118	M	Aluminum				
120	M	Cobalt				
121	M	Magnesium				
129	M	Calcium				
130	M	Sodium				
131	M	Potassium				
203	V	Benzene	BDL	5	BDL	5
205	V	Bromoform	BDL	5	BDL	5
206	V	Carbon tetrachloride	BDL	5	BDL	5
207	V	Chlorobenzene	BDL	5	BDL	5
208	V	Dibromochloromethane	BDL	5	BDL	5
209	V	Chloroethane	BDL	10	BDL	10
211	V	Chloroform	BDL	5	BDL	5
212	V	Bromodichloromethane	BDL	5	BDL	5
214	V	1,1-Dichloroethane	BDL	5	BDL	5
215	V	1,2-Dichloroethane	BDL	5	BDL	5
216	V	1,1-Dichloroethene	BDL	5	BDL	5
217	V	1,2-Dichloropropane	BDL	5	BDL	5
218	V	Cis-1,3-Dichloropropene	BDL	5	BDL	5
219	V	Ethylbenzene	BDL	5	BDL	5
220	V	Bromomethane	BDL	10	BDL	10
221	V	Chloromethane	BDL	10	BDL	10
222	V	Methylene chloride	BDL	5	BDL	5
223	V	1,1,2,2-Tetrachloroethane	BDL	5	BDL	5
224	V	Tetrachloroethene	BDL	5	BDL	5
225	V	Toluene	BDL	5	BDL	5
227	V	1,1,1-Trichloroethane	BDL	5	BDL	5
228	V	1,1,2-Trichloroethane	BDL	5	BDL	5
229	V	Trichloroethene	BDL	5	BDL	5
231	V	Vinyl chloride	BDL	10	BDL	10
250	V	Trans-1,3-Dichloropropene	BDL	5	BDL	5
251	V	Styrene	BDL	5	BDL	5
252	V	Acetone	BDL	10	BDL	10
253	V	2-Butanone	BDL	10	BDL	10
254	V	Carbon disulfide	BDL	5	BDL	5
255	V	2-Hexanone	BDL	10	BDL	10
256	V	4-Methyl-2-pentanone	BDL	10	BDL	10
257	V	Vinyl acetate	BDL	10	BDL	10
289	V	Xylenes (Total)	BDL	5	BDL	5
299	V	1,2-Dichloroethene(Total)	BDL	5	BDL	5

METHOD 8240 RESULTS

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	11199101	11199101B	11159103	11139113
		LAB SAMPLE ID	11199101	11199101B	11159103	11139113
		SAMPLING DATE	11/19/91	11/19/91	11/15/91	11/13/91
		MATRIX	WATER	WATER	WATER	WATER
CMPD	CL	COMPOUND	ug/l	ug/l	ug/l	ug/kg
203	V	Benzene	ND	ND	ND	ND
205	V	Bromoform	ND	ND	ND	ND
206	V	Carbon tetrachloride	ND	ND	ND	ND
207	V	Chlorobenzene	ND	ND	ND	ND
208	V	Dibromochloromethane	ND	ND	ND	ND
209	V	Chloroethane	ND	ND	ND	ND
211	V	Chloroform	ND	ND	ND	ND
212	V	Bromodichloromethane	ND	ND	ND	ND
214	V	1,1-Dichloroethane	ND	ND	ND	ND
215	V	1,2-Dichloroethane	ND	ND	ND	ND
216	V	1,1-Dichloroethene	ND	ND	ND	ND
217	V	1,2-Dichloropropane	ND	ND	ND	ND
218	V	Cis-1,3-Dichloropropene	ND	ND	ND	ND
219	V	Ethylbenzene	ND	ND	ND	ND
220	V	Bromomethane	ND	ND	ND	ND
221	V	Chloromethane	ND	ND	ND	ND
222	V	Methylene chloride	ND	5.48	ND	ND
223	V	1,1,2,2-Tetrachloroethane	ND	ND	ND	ND
224	V	Tetrachloroethene	ND	ND	ND	ND
225	V	Toluene	ND	ND	ND	ND
227	V	1,1,1-Trichloroethane	ND	ND	ND	ND
228	V	1,1,2-Trichloroethane	ND	ND	ND	ND
229	V	Trichloroethene	646.00	650.00	6848.00	106.13
231	V	Vinyl chloride	ND	ND	ND	ND
250	V	Trans-1,3-Dichloropropene	ND	ND	ND	ND
251	V	Styrene	ND	ND	ND	ND
252	V	Acetone	ND	ND	ND	21.11
253	V	2-Butanone	ND	ND	ND	ND
254	V	Carbon disulfide	ND	ND	ND	ND
255	V	2-Hexanone	ND	ND	ND	ND
256	V	4-Methyl-2-pentanone	ND	ND	ND	ND
257	V	Vinyl acetate	ND	ND	ND	ND
289	V	Xylenes (Total)	ND	ND	ND	ND
	V	Trans-1,2 Dichloroethene	164.00	269.40	4779.00	3.45
	V	Trihlorodifluoromethane				
	V	1,1-Dichloroethylene				
	V	2-Chloroethylvinylether	ND	ND	ND	ND
	V	1,3-Dichlorobenzene				
	V	1,2-Dichlorobenzene				
	V	1,4-Dichlorobenzene				

METHOD 8240 RESULTS

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	11149119	11139123	11129127	11129129
		LAB SAMPLE ID	11149119	11139123	11129127	11129129
		SAMPLING DATE	11/14/91	11/13/91	11/12/91	11/12/91
		MATRIX	WATER	WATER	WATER	WATER
CMPD	CL	COMPOUND	ug/l	ug/l	ug/l	ug/l
203	V	Benzene	ND	ND	ND	ND
205	V	Bromoform	ND	ND	ND	ND
206	V	Carbon tetrachloride	ND	ND	ND	ND
207	V	Chlorobenzene	ND	ND	ND	ND
208	V	Dibromochloromethane	ND	ND	ND	ND
209	V	Chloroethane	ND	ND	ND	ND
211	V	Chloroform	ND	ND	ND	ND
212	V	Bromodichloromethane	ND	ND	ND	ND
214	V	1,1-Dichloroethane	ND	ND	ND	ND
215	V	1,2-Dichloroethane	52.72	ND	ND	ND
216	V	1,1-Dichloroethene	8.18	ND	ND	ND
217	V	1,2-Dichloropropane	ND	ND	ND	ND
218	V	Cis-1,3-Dichloropropene	ND	ND	ND	ND
219	V	Ethylbenzene	ND	ND	ND	ND
220	V	Bromomethane	ND	ND	ND	ND
221	V	Chloromethane	ND	ND	ND	ND
222	V	Methylene chloride	ND	ND	ND	ND
223	V	1,1,2,2-Tetrachloroethane	ND	ND	ND	ND
224	V	Tetrachloroethene	ND	ND	ND	ND
225	V	Toluene	14.52	ND	ND	ND
227	V	1,1,1-Trichloroethane	ND	ND	ND	ND
228	V	1,1,2-Trichloroethane	ND	ND	ND	ND
229	V	Trichloroethene	21220.00	99.72	ND	ND
231	V	Vinyl chloride	ND	ND	ND	ND
250	V	Trans-1,3-Dichloropropene	ND	ND	ND	ND
251	V	Styrene	ND	ND	ND	ND
252	V	Acetone	134.97	20.35	ND	ND
253	V	2-Butanone	ND	ND	ND	ND
254	V	Carbon disulfide	ND	10.83	ND	ND
255	V	2-Hexanone	ND	ND	ND	ND
256	V	4-Methyl-2-pentanone	ND	ND	ND	ND
257	V	Vinyl acetate	ND	ND	ND	ND
289	V	Xylenes (Total)	ND	ND	ND	ND
	V	Trans-1,2 Dichloroethene	3833.00	5.02	ND	ND
	V	Trihlorodifluoromethane				
	V	1,1-Dichloroethylene				
	V	2-Chloroethylvinylether	ND	ND	ND	ND
	V	1,3-Dichlorobenzene				
	V	1,2-Dichlorobenzene				
	V	1,4-Dichlorobenzene				

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	11139131	11139135	11139137	11149139
		LAB SAMPLE ID	11139131	11139135	11139137	11149139
		SAMPLING DATE	11/13/91	11/13/91	11/13/91	11/14/91
		MATRIX	WATER	WATER	WATER	WATER
CMPD	CL	COMPOUND	ug/kg	ug/l	ug/l	ug/l
203	V	Benzene	ND	ND	ND	ND
205	V	Bromoform	ND	ND	ND	ND
206	V	Carbon tetrachloride	ND	ND	ND	ND
207	V	Chlorobenzene	ND	ND	ND	ND
208	V	Dibromochloromethane	ND	ND	ND	ND
209	V	Chloroethane	ND	ND	ND	ND
211	V	Chloroform	ND	ND	ND	ND
212	V	Bromodichloromethane	ND	ND	ND	ND
214	V	1,1-Dichloroethane	ND	ND	ND	ND
215	V	1,2-Dichloroethane	ND	ND	ND	ND
216	V	1,1-Dichloroethene	ND	ND	ND	ND
217	V	1,2-Dichloropropane	ND	ND	ND	ND
218	V	Cis-1,3-Dichloropropene	ND	ND	ND	ND
219	V	Ethylbenzene	ND	ND	ND	ND
220	V	Bromomethane	ND	ND	ND	ND
221	V	Chloromethane	ND	ND	ND	ND
222	V	Methylene chloride	ND	1.43	ND	ND
223	V	1,1,2,2-Tetrachloroethane	ND	ND	ND	ND
224	V	Tetrachloroethene	ND	ND	ND	ND
225	V	Toluene	ND	ND	ND	ND
227	V	1,1,1-Trichloroethane	ND	ND	ND	ND
228	V	1,1,2-Trichloroethane	ND	ND	ND	ND
229	V	Trichloroethene	288.00	ND	1220.00	4058.00
231	V	Vinyl chloride	ND	ND	ND	ND
250	V	Trans-1,3-Dichloropropene	ND	ND	ND	ND
251	V	Styrene	ND	ND	ND	ND
252	V	Acetone		ND	ND	68.16
253	V	2-Butanone	ND	ND	ND	ND
254	V	Carbon disulfide	ND	ND	ND	ND
255	V	2-Hexanone	ND	ND	ND	ND
256	V	4-Methyl-2-pentanone	ND	ND	ND	ND
257	V	Vinyl acetate	ND	ND	ND	ND
289	V	Xylenes (Total)	ND	ND	ND	ND
	V	Trans-1,2 Dichloroethene	66.17	ND	ND	7.80
	V	Trihlorodifluoromethane				
	V	1,1-Dichloroethylene				
	V	2-Chloroethylvinylether	ND	ND	ND	ND
	V	1,3-Dichlorobenzene				
	V	1,2-Dichlorobenzene				
	V	1,4-Dichlorobenzene				

		SITE	COLLIERVILLE
		SAMPLE ID	111991RW5
		LAB SAMPLE ID	111991RW5
		SAMPLING DATE	11/19/91
		MATRIX	WATER
CMPD	CL	COMPOUND	ug/l
203	V	Benzene	ND
205	V	Bromoform	ND
206	V	Carbon tetrachloride	ND
207	V	Chlorobenzene	ND
208	V	Dibromochloromethane	ND
209	V	Chloroethane	ND
211	V	Chloroform	ND
212	V	Bromodichloromethane	ND
214	V	1,1-Dichloroethane	ND
215	V	1,2-Dichloroethane	ND
216	V	1,1-Dichloroethene	ND
217	V	1,2-Dichloropropane	ND
218	V	Cis-1,3-Dichloropropene	ND
219	V	Ethylbenzene	ND
220	V	Bromomethane	ND
221	V	Chloromethane	ND
222	V	Methylene chloride	478.00
223	V	1,1,2,2-Tetrachloroethane	ND
224	V	Tetrachloroethene	ND
225	V	Toluene	ND
227	V	1,1,1-Trichloroethane	ND
228	V	1,1,2-Trichloroethane	ND
229	V	Trichloroethene	100400.00
231	V	Vinyl chloride	ND
250	V	Trans-1,3-Dichloropropene	ND
251	V	Styrene	ND
252	V	Acetone	ND
253	V	2-Butanone	ND
254	V	Carbon disulfide	ND
255	V	2-Hexanone	ND
256	V	4-Methyl-2-pentanone	ND
257	V	Vinyl acetate	ND
289	V	Xylenes (Total)	ND
	V	Trans-1,2 Dichloroethene	796.00
	V	Trihlorodifluoromethane	
	V	1,1-Dichloroethylene	
	V	2-Chloroethylvinylether	ND
	V	1,3-Dichlorobenzene	
	V	1,2-Dichlorobenzene	
	V	1,4-Dichlorobenzene	

METHOD 8010 RESULTS

	SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
	SAMPLE ID	11149104	11139106	11159110	11159112	11139114
	LAB SAMPLE ID	11149104	11139106	11159110	11159112	11139114
	SAMPLING DATE	11/14/91	11/13/91	11/15/91	11/15/91	11/13/91
	MATRIX	WATER	WATER	WATER	WATER	WATER
CMPCL	COMPOUND	ug/l	ug/l	ug/l	ug/l	ug/l
203 V	Benzene					
205 V	Bromoform	ND	ND	ND	ND	ND
206 V	Carbon tetrachloride	ND	ND	ND	ND	ND
207 V	Chlorobenzene	ND	ND	ND	ND	ND
208 V	Dibromochloromethane	ND	ND	ND	ND	ND
209 V	Chloroethane	ND	ND	ND	ND	ND
211 V	Chloroform	ND	ND	ND	ND	ND
212 V	Bromodichloromethane	ND	ND	ND	ND	ND
214 V	1,1-Dichloroethane	ND	ND	ND	ND	ND
215 V	1,2-Dichloroethane	ND	ND	ND	ND	ND
216 V	1,1-Dichloroethene					
217 V	1,2-Dichloropropane	ND	ND	ND	ND	ND
218 V	Cis-1,3-Dichloropropene	1	ND	ND	ND	ND
219 V	Ethylbenzene					
220 V	Bromomethane	ND	ND	ND	ND	ND
221 V	Chloromethane	ND	ND	ND	ND	ND
222 V	Methylene chloride	ND	ND	ND	ND	ND
223 V	1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND
224 V	Tetrachloroethene	ND	ND	ND	ND	ND
225 V	Toluene					
227 V	1,1,1-Trichloroethane	ND	ND	ND	ND	ND
228 V	1,1,2-Trichloroethane	ND	ND	ND	ND	ND
229 V	Trichloroethene	5	8	9	ND	2
231 V	Vinyl chloride	ND	ND	ND	ND	ND
250 V	Trans-1,3-Dichloropropene	ND	ND	ND	ND	ND
251 V	Styrene					
252 V	Acetone	ND	ND	ND	ND	ND
253 V	2-Butanone					
254 V	Carbon disulfide					
255 V	2-Hexanone					
256 V	4-Methyl-2-pentanone					
257 V	Vinyl acetate					
289 V	Xylenes (Total)					
299 V	1,2-Dichloroethene(Total)					
V	Trans-1,2-Dichloroethylene	ND	ND	ND	ND	ND
V	Trihlorodifluoromethane	ND	ND	ND	ND	ND
V	1,1-Dichloroethylene	ND	ND	ND	ND	ND
V	2-Chloroethylvinylether	ND	ND	ND	ND	ND
V	1,3-Dichlorobenzene	ND	ND	ND	ND	ND
V	1,2-Dichlorobenzene	ND	ND	ND	ND	ND
V	1,4-Dichlorobenzene	ND	ND	ND	ND	ND

*ND – Not detected at or above the method detection limit of 1.0

METHOD 8010 RESULTS

SITE		COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILL
SAMPLE ID		11149116	11149133	11149147	11159153	11189157
LAB SAMPLE ID		11149116	11149133	11149147	11159153	11189157
SAMPLING DATE		11/16/91	11/14/91	11/14/91	11/15/91	11/18/91
MATRIX		WATER	WATER	WATER	WATER	WATER
CMPCL	COMPOUND	ug/l	ug/l	ug/l	ug/l	ug/l
203 V	Benzene					
205 V	Bromoform	ND	ND	ND	ND	ND
206 V	Carbon tetrachloride	ND	ND	ND	ND	ND
207 V	Chlorobenzene	ND	ND	ND	ND	ND
208 V	Dibromochloromethane	ND	ND	ND	ND	ND
209 V	Chloroethane	ND	ND	ND	ND	ND
211 V	Chloroform	ND	ND	ND	ND	ND
212 V	Bromodichloromethane	ND	ND	ND	ND	ND
214 V	1,1-Dichloroethane	ND	ND	ND	ND	ND
215 V	1,2-Dichloroethane	ND	ND	ND	ND	ND
216 V	1,1-Dichloroethene					
217 V	1,2-Dichloropropane	ND	ND	ND	ND	ND
218 V	Cis-1,3-Dichloropropene	ND	ND	ND	ND	ND
219 V	Ethylbenzene					
220 V	Bromomethane	ND	ND	ND	ND	ND
221 V	Chloromethane	ND	ND	ND	ND	ND
222 V	Methylene chloride	ND	ND	ND	ND	ND
223 V	1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND
224 V	Tetrachloroethene	ND	ND	ND	ND	ND
225 V	Toluene					
227 V	1,1,1-Trichloroethane	ND	ND	ND	ND	ND
228 V	1,1,2-Trichloroethane	ND	ND	ND	ND	ND
229 V	Trichloroethene	ND	ND	ND	1.6	36
231 V	Vinyl chloride	ND	ND	ND	ND	ND
250 V	Trans-1,3-Dichloropropene	ND	ND	ND	ND	ND
251 V	Styrene					
252 V	Acetone	ND				
253 V	2-Butanone					
254 V	Carbon disulfide					
255 V	2-Hexanone					
256 V	4-Methyl-2-pentanone					
257 V	Vinyl acetate					
289 V	Xylenes (Total)					
299 V	1,2-Dichloroethene(Total)					
V	Trans-1,2-Dichloroethylene	ND	ND	ND	ND	ND
V	Trihlorodifluoromethane	ND	ND	ND	ND	ND
V	1,1-Dichloroethylene	ND	ND	ND	ND	ND
V	2-Chloroethylvinylether	ND	ND	ND	ND	ND
V	1,3-Dichlorobenzene	ND	ND	ND	ND	ND
V	1,2-Dichlorobenzene	ND	ND	ND	ND	ND
V	1,4-Dichlorobenzene	ND	ND	ND	ND	ND

METHOD 8010 RESULTS

	SITE		COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
	SAMPLE ID		11189158	11129159	11139161
	LAB SAMPLE ID		11189158	11129159	11139161
	SAMPLING DATE		11/18/91	11/12/91	11/13/91
	MATRIX		WATER	WATER	WATER
CMPCL	COMPOUND		ug/l	ug/l	ug/l
203 V	Benzene				
205 V	Bromoform		ND	ND	ND
206 V	Carbon tetrachloride		ND	ND	ND
207 V	Chlorobenzene		ND	ND	ND
208 V	Dibromochloromethane		ND	ND	ND
209 V	Chloroethane		ND	ND	ND
211 V	Chloroform		ND	ND	ND
212 V	Bromodichloromethane		ND	ND	ND
214 V	1,1-Dichloroethane		ND	ND	ND
215 V	1,2-Dichloroethane		ND	ND	ND
216 V	1,1-Dichloroethene				
217 V	1,2-Dichloropropane		ND	ND	ND
218 V	Cis-1,3-Dichloropropene		ND	ND	ND
219 V	Ethylbenzene				
220 V	Bromomethane		ND	ND	ND
221 V	Chloromethane		ND	ND	ND
222 V	Methylene chloride		ND	ND	ND
223 V	1,1,2,2-Tetrachloroethane		ND	ND	ND
224 V	Tetrachloroethene		ND	ND	ND
225 V	Toluene				
227 V	1,1,1-Trichloroethane		ND	ND	ND
228 V	1,1,2-Trichloroethane		ND	ND	ND
229 V	Trichloroethene		ND	ND	ND
231 V	Vinyl chloride		ND	ND	ND
250 V	Trans-1,3-Dichloropropene		ND	ND	ND
251 V	Styrene				
252 V	Acetone				
253 V	2-Butanone				
254 V	Carbon disulfide				
255 V	2-Hexanone				
256 V	4-Methyl-2-pentanone				
257 V	Vinyl acetate				
289 V	Xylenes (Total)				
299 V	1,2-Dichloroethene(Total)				
V	Trans-1,2-Dichloroethylene		ND	ND	ND
V	Trihlorodifluoromethane		ND	ND	ND
V	1,1-Dichloroethylene		ND	ND	ND
V	2-Chloroethylvinylether		ND	ND	ND
V	1,3-Dichlorobenzene		ND	ND	ND
V	1,2-Dichlorobenzene		ND	ND	ND
V	1,4-Dichlorobenzene		ND	ND	ND

METHOD 8010 RESULTS

SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
SAMPLE ID	111891CMW001	111491CMW002	111491CMW003	111891105
LAB SAMPLE ID	111891CMW001	111491CMW002	111491CMW003	111891105
SAMPLING DATE	11/18/91	11/14/91	11/14/91	11/18/91
MATRIX	WATER	WATER	WATER	WATER
CMPCL COMPOUND	ug/l	ug/l	ug/l	ug/l
203 V Benzene				
205 V Bromoform	ND	ND	ND	ND
206 V Carbon tetrachloride	ND	ND	ND	ND
207 V Chlorobenzene	ND	ND	ND	ND
208 V Dibromochloromethane	ND	ND	ND	ND
209 V Chloroethane	ND	ND	ND	ND
211 V Chloroform	ND	ND	ND	ND
212 V Bromodichloromethane	ND	ND	ND	ND
214 V 1,1-Dichloroethane	ND	ND	ND	ND
215 V 1,2-Dichloroethane	ND	ND	ND	ND
216 V 1,1-Dichloroethene				
217 V 1,2-Dichloropropane	ND	ND	ND	ND
218 V Cis-1,3-Dichloropropene	ND	ND	ND	ND
219 V Ethylbenzene				
220 V Bromomethane	ND	ND	ND	ND
221 V Chloromethane	ND	ND	ND	ND
222 V Methylene chloride	ND	ND	ND	ND
223 V 1,1,2,2-Tetrachloroethane	ND	ND	ND	ND
224 V Tetrachloroethene	ND	ND	ND	ND
225 V Toluene				
227 V 1,1,1-Trichloroethane	ND	ND	ND	ND
228 V 1,1,2-Trichloroethane	ND	ND	ND	ND
229 V Trichloroethene	ND	ND	ND	ND
231 V Vinyl chloride	ND	ND	ND	ND
250 V Trans-1,3-Dichloropropene	ND	ND	ND	ND
251 V Styrene				
252 V Acetone				
253 V 2-Butanone				
254 V Carbon disulfide				
255 V 2-Hexanone				
256 V 4-Methyl-2-pentanone				
257 V Vinyl acetate				
289 V Xylenes (Total)				
299 V 1,2-Dichloroethene(Total)				
V Trans-1,2-Dichloroethylene	ND	ND	ND	ND
V Trihlorodifluoromethane	ND	ND	ND	ND
V 1,1-Dichloroethylene	ND	ND	ND	ND
V 2-Chloroethylvinylether	ND	ND	ND	ND
V 1,3-Dichlorobenzene	ND	ND	ND	ND
V 1,2-Dichlorobenzene	ND	ND	ND	ND
V 1,4-Dichlorobenzene	ND	ND	ND	ND

METHOD 8010 RESULTS

	SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
	SAMPLE ID	111891110	111291FB	111391FB	111491FB
	LAB SAMPLE ID	111891110	111291FB	111391FB	111491FB
	SAMPLING DATE	11/18/91	11/12/91	11/13/91	11/14/91
	MATRIX	WATER	WATER	WATER	WATER
CMPCL	COMPOUND	ug/l	ug/l	ug/l	ug/l
203 V	Benzene				
205 V	Bromoform	ND	ND	ND	ND
206 V	Carbon tetrachloride	ND	ND	ND	ND
207 V	Chlorobenzene	ND	ND	ND	ND
208 V	Dibromochloromethane	ND	ND	ND	ND
209 V	Chloroethane	ND	ND	ND	ND
211 V	Chloroform	ND	ND	ND	ND
212 V	Bromodichloromethane	ND	ND	ND	ND
214 V	1,1-Dichloroethane	ND	ND	ND	ND
215 V	1,2-Dichloroethane	ND	ND	ND	ND
216 V	1,1-Dichloroethene				
217 V	1,2-Dichloropropane	ND	ND	ND	ND
218 V	Cis-1,3-Dichloropropene	ND	ND	ND	ND
219 V	Ethylbenzene				
220 V	Bromomethane	ND	ND	ND	ND
221 V	Chloromethane	ND	ND	ND	ND
222 V	Methylene chloride	ND	ND	ND	ND
223 V	1,1,2,2-Tetrachloroethane	ND	ND	ND	ND
224 V	Tetrachloroethene	ND	ND	ND	ND
225 V	Toluene				
227 V	1,1,1-Trichloroethane	ND	ND	ND	ND
228 V	1,1,2-Trichloroethane	ND	ND	ND	ND
229 V	Trichloroethene	ND	ND	ND	ND
231 V	Vinyl chloride	ND	ND	ND	ND
250 V	Trans-1,3-Dichloropropene	ND	ND	ND	ND
251 V	Styrene				
252 V	Acetone				
253 V	2-Butanone				
254 V	Carbon disulfide				
255 V	2-Hexanone				
256 V	4-Methyl-2-pentanone				
257 V	Vinyl acetate				
289 V	Xylenes (Total)				
299 V	1,2-Dichloroethene(Total)				
V	Trans-1,2-Dichloroethylene	ND	ND	ND	ND
V	Trihlorodifluoromethane	ND	ND	ND	ND
V	1,1-Dichloroethylene	ND	ND	ND	ND
V	2-Chloroethylvinylether	ND	ND	ND	ND
V	1,3-Dichlorobenzene	ND	ND	ND	ND
V	1,2-Dichlorobenzene	ND	ND	ND	ND
V	1,4-Dichlorobenzene	ND	ND	ND	ND

METHOD 8010 RESULTS

	SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
	SAMPLE ID	111591FB	111891FB	111991FB
	LAB SAMPLE ID	111591FB	111891FB	111991FB
	SAMPLING DATE	11/15/91	11/18/91	11/19/91
	MATRIX	WATER	WATER	WATER
CMPCL	COMPOUND	ug/l	ug/l	ug/l
203 V	Benzene			
205 V	Bromoform	ND	ND	ND
206 V	Carbon tetrachloride	ND	ND	ND
207 V	Chlorobenzene	ND	ND	ND
208 V	Dibromochloromethane	ND	ND	ND
209 V	Chloroethane	ND	ND	ND
211 V	Chloroform	5	ND	ND
212 V	Bromodichloromethane	ND	ND	ND
214 V	1,1-Dichloroethane	ND	ND	ND
215 V	1,2-Dichloroethane	ND	ND	ND
216 V	1,1-Dichloroethene			
217 V	1,2-Dichloropropane	ND	ND	ND
218 V	Cis-1,3-Dichloropropene	ND	ND	ND
219 V	Ethylbenzene			
220 V	Bromomethane	ND	ND	ND
221 V	Chloromethane	ND	ND	ND
222 V	Methylene chloride	ND	ND	ND
223 V	1,1,2,2-Tetrachloroethane	ND	ND	ND
224 V	Tetrachloroethene	ND	ND	ND
225 V	Toluene			
227 V	1,1,1-Trichloroethane	ND	ND	ND
228 V	1,1,2-Trichloroethane	ND	ND	ND
229 V	Trichloroethene	ND	ND	ND
231 V	Vinyl chloride	ND	ND	ND
250 V	Trans-1,3-Dichloropropene	ND	ND	ND
251 V	Styrene			
252 V	Acetone			
253 V	2-Butanone			
254 V	Carbon disulfide			
255 V	2-Hexanone			
256 V	4-Methyl-2-pentanone			
257 V	Vinyl acetate			
289 V	Xylenes (Total)			
299 V	1,2-Dichloroethene(Total)			
V	Trans-1,2-Dichloroethylene	ND	ND	ND
V	Trihlorodifluoromethane	ND	ND	ND
V	1,1-Dichloroethylene	ND	ND	ND
V	2-Chloroethylvinylether	ND	ND	ND
V	1,3-Dichlorobenzene	ND	ND	ND
V	1,2-Dichlorobenzene	ND	ND	ND
V	1,4-Dichlorobenzene	ND	ND	ND

APPENDIX I

DATA FROM SOIL SCREENING TESTS
SOIL BORINGS AND MONITOR WELL INSTALLATIONS

DATA FROM SOIL SCREENING
COLLIERVILLE SITE
TEST-TCE

BORING NO.	* SAMPLE NO.	TRICHLOROETHYLENE PPM
B1	0	<0.01
B1	1	<0.01
B1	2	0.01
B1	3	<0.01
B1	4	0.02
B2	0	0.01
B2	1	0.12
B2	2	0.23
B2	3	1.27
B2	4	2.60
B3	0	0.01
B3	1	N/A
B3	2	0.04
B3	3	0.04
B3	4	0.02
B4	0	250
B4	1	0.75
B4	2	0.54
B4	3	0.24
B4	4	0.04
B5	0	0.08
B5	2	0.84
B5	3	0.77
B5	4	1.85
B6	0	<0.01
B6	1	<0.01
B6	2	0.02
B6	4	0.02
B7	0	<0.01
B7	1	0.02
B7	2	0.01
B7	4	<0.01
B8	0	0.01
B8	1	0.01
B8	2	0.05
B8	3	0.01
B8	4	0.02
B9	0	48.0
B9	1	22.0
B9	2	1550
B9	3	3.00
B9	4	6.30

DATA FROM SOIL SCREENING
COLLIERVILLE SITE
TEST-TCE

BORIN NO.	* SAMPLE NO.	TRICHLOROETHYLENE PPM
B10	0	<0.01
B10	1	<0.01
B10	2	<0.01
B10	4	0.01
B11	0	<0.01
B11	1	<0.01
B11	2	<0.01
B11	4	<0.01
B12	0	<0.01
B12	1	<0.01
B12	2	0.02
B12	4	0.04
B13	0	<0.01
B13	1	<0.01
B13	2	<0.01
B13	4	<0.01
B14	0	<0.01
B14	1	<0.01
B14	2	<0.01
B14	4	0.01
B15	NO ANALYSIS	
B16	0	<0.01
B16	1	<0.01
B16	2	0.03
B16	4	0.01
	OLD UNLINED LAGOON	
B17	0	15.00
B17	3	168.00
B17	4	0.96
B18	1	16.00
B18	3	2.10
B18	4	0.13
B19	1	0.84
B19	3	0.92
B19	4	0.01
B20	(ADJACENT TO GRAVEL ROAD)	
B20	0	<0.01
B20	2	<0.01

DATA FROM SOIL SCREENING
COLLIERVILLE SITE
TEST-TCE

BORIN NO.	* SAMPLE NO.	TRICHLOROETHYLENE PPM
B21	0	6.90
B21	1	20.0
B21	2	0.80
B21	3	8.00
B21	4	11.0
B21	5	2.30
B21	6	0.23
B21	7	<0.01
B21	8	1.90
B21	9	0.01
B22	0	0.11
B22	1	<0.01
B22	2	0.01
B22	4	0.01
B23	0	<0.01
B23	1	<0.01
B23	2	<0.01
B23	4	<0.01
B24	0	<0.01
B24	1	<0.01
B24	2	<0.01
B24	4	<0.01
B25	0	<0.01
B25	1	<0.01
B25	2	<0.01
B25	4	<0.01
B26	0	0.26
B26	1	0.30
B26	2	0.22
B26	4	0.44
B26	6	<0.01
B26	7	0.08
B26	8	0.23

DATA FROM SOIL SCREENING
COLLIERVILLE SITE
TEST-TCE

BORIN NO.	* SAMPLE NO.	TRICHLOROETHYLENE PPM
B27	0	<0.01
B27	1	<0.01
B27	2	0.11
B27	4	0.60
B27	6	0.01
B27	8	0.22
B27	10	0.02
B27	11	3.00
B28	0	<0.01
B28	1	<0.01
B28	2	<0.01
B28	3	0.01
B28	4	0.22
B29	0	5.80
B29	1	4.00
B29	2	4.50
B29	4	0.34
B30	11	0.38
B30	12	0.20
B30	13	0.18
B30	14	0.23
B30	LIQUID	2.00
B31	0	5.80
B31	1	4.00
B31	2	4.50
B31	4	0.34
B32	0	0.02
B32	1	0.02
B32	2	0.04
B32	4	<0.01
B33	0	<0.01
B33	1	<0.01
B33	2	<0.01
B33	4	<0.01
B34	0	0.01
B34	1	<0.01
B34	2	0.03
B34	4	0.04
B34	6	<0.01
B34	8	0.02

DATA FROM SOIL SCREENING
COLLIERVILLE SITE
TEST-TCE

BORIN NO.	* SAMPLE NO.	TRICHLOROETHYLENE PPM
B35	0	0.23
B35	1	0.10
B35	2	0.98
B35	4	22.0
B35	6	0.07
B35	8	0.19
B35	9	0.09
B36/MW16	0	<0.01
B36/MW16	1	<0.01
B36/MW16	2	<0.01
B36/MW16	4	<0.01
B36/MW16	6	<0.01
B36/MW16	8	<0.01
B36/MW16	10	<0.01
B36/MW16	11	<0.01

DATA FROM SOIL SCREENING
COLLIERVILLE SITE
TEST-TCE

BORIN NO.	* SAMPLE NO.	TRICHLOROETHYLENE PPM
MW3	1	<0.01
MW3	2	<0.01
MW3	3	<0.01
MW3	4	0.01
MW5	2	0.02
MW5	3	0.01
MW5	4	0.02
MW9	1	<0.01
MW9	2	<0.01
MW9	3	<0.01
MW9	4	<0.01
MW11	1	<0.01
MW11	2	<0.01
MW11	3	<0.01
MW11	4	<0.01
MW15	0	<0.01
MW15	1	<0.01
MW15	2	<0.01
MW15	4	<0.01
MW15	9	0.09
MW15	10	0.16
MW17	0	<0.01
MW17	1	<0.01
MW17	2	<0.01
MW17	3	<0.01
MW17	4	<0.01
MW17	6	<0.01
MW17	8	0.09
MW17	9	0.11
MW17	10	0.24
MW17	10.5	0.45
MW19	0	<0.01
MW19	1	<0.01
MW19	2	<0.01
MW19	3	<0.01
MW19	4	<0.01
MW19	6	<0.01
MW19	7	<0.01
MW19	9	<0.01
MW19	10	0.04
MW19	10	0.43
MW19	11	0.02

DATA FROM SOIL SCREENING
COLLIERVILLE SITE
TEST-TCE

BORIN NO.	* SAMPLE NO.	TRICHLOROETHYLENE PPM
MW21	0	<0.01
MW21	1	<0.01
MW21	2	<0.01
MW21	4	<0.01
MW21	8	0.05
MW21	8.5	0.11
MW23	0	<0.01
MW23	1	<0.01
MW23	2	<0.01
MW23	4	<0.01
MW23	6	<0.01
MW23	7	<0.01

Note: 1, 2 – Dichloroethene was not detected in soil samples utilizing the field screening method.

* Sample #	Corresponding Sample Interval
0	0.5 – 2.0'
1	3.0 – 5.0'
2	8.0 – 10.0'
3	13.0 – 15.0'
4	18.0 – 20.0'
5	23.0 – 25.0'
6	28.0 – 30.0'
7	33.0 – 35.0'
8	38.0 – 40.0'
8.5	41.0 – 42.5'
9	43.0 – 45.0'
10	48.0 – 50.0'
10.5	51.0 – 52.5'
11	53.0 – 55.0'
12	58.0 – 60.0'
13	63.5 – 65.0'
14	73.5 – 75.0'

SOIL BORING DATA
COLLIERVILLE SITE

BORING NO.	* SAMPLE NO.	TRICHLOROETHENE PPM	1,2-DICHLOROETHENE PPM
B41	1	<0.01	<0.01
B41	2	<0.01	<0.01
B41	3	<0.01	<0.01
B41	4	<0.01	<0.01
B41	5	<0.01	<0.01
B41	6	<0.01	<0.01
B41	7	<0.01	<0.01
B42	1	<0.01	<0.01
B42	2	<0.01	<0.01
B42	3	<0.01	<0.01
B42	4	<0.01	<0.01
B42	5	<0.01	<0.01
B42	6	<0.01	<0.01
B42	7	<0.01	<0.01
B42	8	<0.01	<0.01
B42	9	<0.01	<0.01
B42	10	<0.01	<0.01
B42	11	0.01	<0.01
B43	1	0.01	<0.01
B43	2	0.03	<0.01
B43	3	0.02	<0.01
B43	4	<0.01	<0.01
B43	5	0.01	<0.01
B43	6	<0.01	<0.01
B43	7	<0.01	<0.01
B43	8	<0.01	<0.01
B43	9	0.01	<0.01
B44	1	0.02	<0.01
B44	2	0.01	<0.01
B44	3	<0.01	<0.01
B44	4	<0.01	<0.01
B44	5	<0.01	<0.01
B44	6	0.02	<0.01
B44	7	<0.01	<0.01
B44	8	0.01	<0.01

SOIL BORING DATA
COLLIERVILLE SITE

BORING NO.	* SAMPLE NO.	TRICHLOROETHENE PPM	1,2-DICHLOROETHENE PPM
B45	1	<0.01	<0.01
B45	2	<0.01	<0.01
B45	3	<0.01	<0.01
B45	4	<0.01	<0.01
B45	5	<0.01	<0.01
B45	6	<0.01	<0.01
B46	1	0.05	<0.01
B46	2	0.07	<0.01
B46	3	0.09	<0.01
B46	4	0.08	<0.01
B46	5	0.01	<0.01
B46	6	<0.01	<0.01
B47	1	<0.01	<0.01
B47	2	<0.01	<0.01
B47	3	0.01	<0.01
B47	4	<0.01	<0.01
B47	5	<0.01	<0.01
B47	6	<0.01	<0.01
B47	7	<0.01	<0.01
B47	8	0.01	<0.01
B47	9	<0.01	<0.01
B47	10	<0.01	<0.01
B47	11	<0.01	<0.01
B48	1	<0.01	<0.01
B48	2	0.20	<0.01
B48	3	0.44	<0.01
B48	4	0.01	<0.01
B48	5	<0.01	<0.01
B48	6	0.19	<0.01
B48	7	0.02	<0.01
B48	8	<0.01	<0.01

SOIL BORING DATA
COLLIERVILLE SITE

BORING NO.	* SAMPLE NO.	TRICHLOROETHENE PPM	1,2-DICHLOROETHENE PPM
B49	1	<0.01	<0.01
B49	2	<0.01	<0.01
B49	3	<0.01	<0.01
B49	4	<0.01	<0.01
B49	5	<0.01	<0.01
B49	6	<0.01	<0.01
B49	7	<0.01	<0.01
B49	8	0.15	<0.01
B49	9	0.17	<0.01
B49	10	<0.01	<0.01

SOIL BORING DATA
COLLIERVILLE SITE

BORING NO.	* SAMPLE NO.	TRICHLOROETHENE PPM	1,2-DICHLOROETHENE PPM
MW27	1	<0.01	<0.01
MW27	2	<0.01	<0.01
MW27	3	<0.01	<0.01
MW27	4	<0.01	<0.01
MW27	5	<0.01	<0.01
MW27	6	<0.01	<0.01
MW27	7	<0.01	<0.01
MW27	8	<0.01	<0.01
MW27	9	<0.01	<0.01
MW27	10	<0.01	<0.01
MW27	11	<0.01	<0.01
MW27	12	<0.01	<0.01
MW29	1	<0.01	<0.01
MW29	2	<0.01	<0.01
MW29	3	<0.01	<0.01
MW29	4	<0.01	<0.01
MW29	5	<0.01	<0.01
MW29	6	<0.01	<0.01
MW29	7	<0.01	<0.01
MW29	8	<0.01	<0.01
MW29	9	<0.01	<0.01
MW29	10	<0.01	<0.01
MW29	11	<0.01	<0.01
MW29	12	<0.01	<0.01
MW31	1	<0.01	<0.01
MW31	2	<0.01	<0.01
MW31	3	<0.01	<0.01
MW31	4	<0.01	<0.01
MW31	5	<0.01	<0.01
MW31	6	<0.01	<0.01
MW31	7	<0.01	<0.01
MW31	8	0.01	<0.01
MW31	9	<0.01	<0.01
MW31	10	<0.01	<0.01

SOIL BORING DATA
COLLIERVILLE SITE

BORING NO.	* SAMPLE NO.	TRICHLOROETHENE PPM	1,2-DICHLOROETHENE PPM
MW33	1	<0.01	<0.01
MW33	2	<0.01	<0.01
MW33	3	<0.01	<0.01
MW33	4	<0.01	<0.01
MW33	5	<0.01	<0.01
MW33	6	<0.01	<0.01
MW33	7	<0.01	<0.01
MW33	8	<0.01	<0.01
MW33	9	<0.01	<0.01
MW33	10	<0.01	<0.01
MW35	1	<0.01	<0.01
MW35	2	<0.01	<0.01
MW35	3	<0.01	<0.01
MW35	4	<0.01	<0.01
MW35	5	<0.01	<0.01
MW35	6	<0.01	<0.01
MW35	7	<0.01	<0.01
MW35	8	<0.01	<0.01
MW37	1	0.01	<0.01
MW37	2	<0.01	<0.01
MW37	3	<0.01	<0.01
MW37	4	<0.01	<0.01
MW37	5	<0.01	<0.01
MW37	6	<0.01	<0.01
MW37	7	<0.01	<0.01
MW37	8	<0.01	<0.01
MW37	9	<0.01	<0.01
MW37	10	<0.01	<0.01

SOIL BORING DATA
COLLIERVILLE SITE

BORING NO.	* SAMPLE NO.	TRICHLOROETHENE PPM	1,2-DICHLOROETHENE PPM
MW39	1	0.01	<0.01
MW39	2	0.07	<0.01
MW39	3	0.03	<0.01
MW39	4	<0.01	<0.01
MW39	5	<0.01	<0.01
MW39	6	<0.01	<0.01
MW39	7	<0.01	<0.01
MW39	8	<0.01	<0.01
MW39	9	<0.01	<0.01
MW39	10	<0.01	<0.01
MW39	11	<0.01	<0.01
MW39	12	0.01	<0.01
MW41	1	<0.01	<0.01
MW41	2	<0.01	<0.01
MW41	3	<0.01	<0.01
MW41	4	<0.01	<0.01
MW41	5	<0.01	<0.01
MW41	6	<0.01	<0.01
MW41	7	<0.01	<0.01
MW41	8	<0.01	<0.01
MW41	9	<0.01	<0.01
MW41	10	<0.01	<0.01
MW41	11	0.31	<0.01
MW43	1	<0.01	<0.01
MW43	2	<0.01	<0.01
MW43	3	<0.01	<0.01
MW43	4	<0.01	<0.01
MW43	5	<0.01	<0.01
MW43	6	<0.01	<0.01
MW43	7	<0.01	<0.01
MW43	8	<0.01	<0.01
MW43	9	<0.01	<0.01

SOIL BORING DATA
COLLIERVILLE SITE

BORING NO.	* SAMPLE NO.	TRICHLOROETHENE PPM	1,2-DICHLOROETHENE PPM
MW45	1	<0.01	<0.01
MW45	2	<0.01	<0.01
MW45	3	<0.01	<0.01
MW45	4	<0.01	<0.01
MW45	5	<0.01	<0.01
MW45	6	<0.01	<0.01
MW45	7	<0.01	<0.01
MW45	8	<0.01	<0.01
MW45	9	<0.01	<0.01
MW45	10	<0.01	<0.01
MW45	11	<0.01	<0.01
MW45	12	<0.01	<0.01
MW47	1	<0.001	<0.010
MW47	2	<0.001	<0.010
MW47	3	<0.001	<0.010
MW47	4	<0.001	<0.010
MW47	5	<0.001	<0.010
MW47	6	<0.001	<0.010
MW47	7	<0.001	<0.010
MW49	1	<0.001	<0.010
MW49	2	<0.001	<0.010
MW49	3	<0.001	<0.010
MW49	4	<0.001	<0.010
MW49	5	<0.001	<0.010
MW49	6	<0.001	<0.010
MW49	7	<0.001	<0.010
MW49	8	<0.001	<0.010
MW51	1	<0.001	<0.010
MW51	2	<0.001	<0.010
MW51	3	<0.001	<0.010
MW51	4	<0.001	<0.010
MW51	5	<0.001	<0.010
MW51	6	<0.001	<0.010
MW51	7	<0.001	<0.010
MW51	8	<0.001	<0.010

SOIL BORING DATA
COLLIERVILLE SITE

BORING NO.	* SAMPLE NO.	TRICHLOROETHENE PPM	1,2-DICHLOROETHENE PPM
MW51	9	<0.001	<0.010
MW51	10	<0.001	<0.010
MW51	11	<0.001	<0.010
MW51	12	<0.001	<0.010
MW51	13	<0.001	<0.010
MW51	14	<0.001	<0.010
MW53	1	<0.001	<0.010
MW53	2	<0.001	<0.010
MW53	3	<0.001	<0.010
MW53	4	<0.001	<0.010
MW53	5	<0.001	<0.010
MW53	6	<0.001	<0.010
MW53	7	<0.001	<0.010
MW53	8	<0.001	<0.010
MW53	9	<0.001	<0.010
MW53	10	<0.001	<0.010
MW53	11	<0.001	<0.010
MW53	12	<0.001	<0.010
MW53	13	<0.001	<0.010
MW53	14	<0.001	<0.010
MW55	1	<0.001	<0.010
MW55	2	<0.001	<0.010
MW55	3	<0.001	<0.010
MW55	4	<0.001	<0.010
MW55	5	<0.001	<0.010
MW55	6	<0.001	<0.010
MW55	7	<0.001	<0.010
MW55	8	<0.001	<0.010
MW55	9	<0.001	<0.010
MW55	10	<0.001	<0.010
MW55	11	<0.001	<0.010
MW55	12	<0.001	<0.010
MW55	13	<0.001	<0.010
MW57	1	<0.001	<0.010
MW57	2	<0.001	<0.010

SOIL BORING DATA
COLLIERVILLE SITE

BORING NO.	* SAMPLE NO.	TRICHLOROETHENE PPM	1,2-DICHLOROETHENE PPM
MW57	3	<0.001	<0.010
MW57	4	<0.001	<0.010
MW57	5	<0.001	<0.010
MW57	6	<0.001	<0.010
MW57	7	<0.001	<0.010
MW57	8	<0.001	<0.010
MW57	9	<0.001	<0.010
MW57	10	<0.001	<0.010
MW57	11	<0.001	<0.010
MW57	12	<0.001	<0.010
MW58	1	<0.001	<0.010
MW58	2	<0.001	<0.010
MW58	3	<0.001	<0.010
MW58	4	<0.001	<0.010
MW58	5	<0.001	<0.010
MW58	6	<0.001	<0.010
MW58	7	<0.001	<0.010
MW58	8	<0.001	<0.010
MW58	9	<0.001	<0.010
MW58	10	<0.001	<0.010
MW58	11	<0.001	<0.010
MW58	12	<0.001	<0.010
MW59	1	<0.001	<0.010
MW59	2	<0.001	<0.010
MW59	3	<0.001	<0.010
MW59	4	<0.001	<0.010
MW59	5	<0.001	<0.010
MW59	6	<0.001	<0.010
MW59	7	<0.001	<0.010
MW59	8	<0.001	<0.010
MW59	9	<0.001	<0.010
MW59	10	<0.001	<0.010
MW59	11	<0.001	<0.010
MW61	1	<0.001	<0.010
MW61	2	<0.001	<0.010

SOIL BORING DATA
COLLIERVILLE SITE

BORING NO.	* SAMPLE NO.	TRICHLOROETHENE PPM	1,2-DICHLOROETHENE PPM
MW61	3	<0.001	<0.010
MW61	4	<0.001	<0.010
MW61	5	<0.001	<0.010
MW61	6	<0.001	<0.010
MW61	7	<0.001	<0.010
MW61	8	<0.001	<0.010
MW61	9	<0.001	<0.010
MW61	10	<0.001	<0.010
MW61	11	<0.001	<0.010
B-51	1	<0.001	<0.010
B-51	2	<0.001	<0.010
B-51	3	<0.001	<0.010
B-51	4	<0.001	<0.010
B-51	5	<0.001	<0.010
B-51	6	<0.001	<0.010
B-51	7	<0.001	<0.010
B-51	8	<0.001	<0.010
B-51	9	<0.001	<0.010
B-51	10	<0.001	<0.010
B-51	11	<0.001	<0.010
B-53	1	<0.001	<0.010
B-53	2	<0.001	<0.010
B-53	3	<0.001	<0.010
B-53	4	<0.001	<0.010
B-53	5	<0.001	<0.010
B-53	6	<0.001	<0.010
B-53	7	<0.001	<0.010
B-53	8	<0.001	<0.010
B-53	9	<0.001	<0.010
B-53	10	<0.001	<0.010
B-53	11	<0.001	<0.010

APPENDIX J

BACKGROUND WELL DATA

COLLIERVILLE SITE: RESULTS OF SAMPLES COLLECTED FROM BACKGROUND WELLS INSTALLED AUGUST, 1990; THIRD QUARTER GROUN

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	083090CMW-001	083090CMW-002	083090CMW-003
		LAB SAMPLE ID	083090CMW-001	083090CMW-002	083090CMW-003
		SAMPLING DATE	08/30/90	08/30/90	08/30/90
		MATRIX	WATER	WATER	WATER
CMP	CL	COMPOUND	ug/l	ug/l	ug/l
101	M	Antimony	BDL 42.9	BDL 42.9	BDL 42.9
102	M	Arsenic	BDL 0.7	BDL 0.7	BDL 0.7
103	M	Beryllium	BDL 1.4	BDL 1.4	BDL 1.4
104	M	Cadmium	BDL 3	BDL 3	BDL 3
105	M	Chromium	BDL 6.6	26	23
106	M	Copper	BDL 6.3	7 B	21 B
107	M	Lead	4.3	20 B	39.5
108	M	Mercury	BDL 0.2	BDL 0.2	BDL 0.2
109	M	Nickel	10 B	41	55
110	M	Selenium	BDL 1.2	BDL 1.2	BDL 1.2
111	M	Silver	BDL 9.6	BDL 9.6	BDL 9.6
112	M	Thallium	BDL 0.6	BDL 0.6	BDL 0.6
113	M	Zinc	5 B	1580	1380
114	M	Barium	BDL 41.2	BDL 41.2	60 B
115	M	Iron	1420	1320	14900
116	M	Manganese	BDL 2.9	47	74
117	M	Vanadium	BDL 7.6	BDL 7.6	30 B
118	M	Aluminum	1370	1210	9710
120	M	Cobalt	BDL 20.7	BDL 20.7	BDL 20.7
121	M	Magnesium	BDL 1010	2570 B	4790 B
129	M	Calcium	BDL 586	10700	14500
130	M	Sodium	BDL 1210	60800	82300
131	M	Potassium	BDL 1210	3390 B	BDL 1210
203	V	Benzene	BDL 5	BDL 5	BDL 5
205	V	Bromoform	BDL 5	BDL 5	BDL 5
206	V	Carbon tetrachloride	BDL 5	BDL 5	BDL 5
207	V	Chlorobenzene	BDL 5	BDL 5	BDL 5
208	V	Dibromochloromethane	BDL 5	BDL 5	BDL 5
209	V	Chloroethane	BDL 10	BDL 10	BDL 10
211	V	Chloroform	BDL 5	BDL 5	BDL 5
212	V	Bromodichloromethane	BDL 5	BDL 5	BDL 5
214	V	1,1-Dichloroethane	BDL 5	BDL 5	BDL 5
215	V	1,2-Dichloroethane	BDL 5	BDL 5	BDL 5
216	V	1,1-Dichloroethene	BDL 5	BDL 5	BDL 5
217	V	1,2-Dichloropropane	BDL 5	BDL 5	BDL 5
218	V	Cis-1,3-Dichloropropene	BDL 5	BDL 5	BDL 5
219	V	Ethylbenzene	BDL 5	BDL 5	BDL 5
220	V	Bromomethane	BDL 10	BDL 10	BDL 10
221	V	Chloromethane	BDL 10	BDL 10	BDL 10
222	V	Methylene chloride	2 BJ	1 BJ	1 BJ
223	V	1,1,2,2-Tetrachloroethane	BDL 5	BDL 5	BDL 5
224	V	Tetrachloroethene	4 J	BDL 5	BDL 5
225	V	Toluene	BDL 5	BDL 5	BDL 5
227	V	1,1,1-Trichloroethane	BDL 5	BDL 5	BDL 5
228	V	1,1,2-Trichloroethane	BDL 5	BDL 5	BDL 5
229	V	Trichloroethene	BDL 5	BDL 5	BDL 5
231	V	Vinyl chloride	BDL 10	BDL 10	BDL 10
250	V	Trans-1,3-Dichloropropene	BDL 5	BDL 5	BDL 5
251	V	Styrene	BDL 5	BDL 5	BDL 5
252	V	Acetone	6 BJ	12 B	10 B
253	V	2-Butanone	BDL 10	BDL 10	BDL 10
254	V	Carbon disulfide	0.4 J	BDL 5	BDL 5
255	V	2-Hexanone	BDL 10	BDL 10	BDL 10
256	V	4-Methyl-2-pentanone	BDL 10	BDL 10	BDL 10
257	V	Vinyl acetate	BDL 10	BDL 10	BDL 10
289	V	Xylenes (Total)	BDL 5	BDL 5	BDL 5
299	V	1,2-Dichloroethene(Total)	BDL 5	BDL 5	BDL 5

COLLIERVILLE SITE: RESULTS OF SAMPLES COLLECTED FROM BACKGROUND WELLS INSTALLED AUGUST, 1990; THIRD QUARTER GROUN

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	083090CMW-001F	083090CMW-002F	083090CMW-003F
		LAB SAMPLE ID	083090CMW-001F	083090CMW-002F	083090CMW-003F
		SAMPLING DATE	08/30/90	08/30/90	08/30/90
		MATRIX	WATER	WATER	WATER
CMP	CL	COMPOUND	ug/l	ug/l	ug/l
101	M	Antimony	BDL 42.9	BDL 42.9	BDL 42.9
102	M	Arsenic	0.6 B	BDL 0.5	0.6 B
103	M	Beryllium	BDL 1.4	BDL 1.4	BDL 1.4
104	M	Cadmium	BDL 3	BDL 3	BDL 3
105	M	Chromium	7 B	12	BDL 6.6
106	M	Copper	BDL 6.3	7 B	BDL 6.3
107	M	Lead	BDL 0.3	2.4 B	0.3 B
108	M	Mercury	BDL 0.2	BDL 0.2	BDL 0.2
109	M	Nickel	BDL 9.4	19 B	18 B
110	M	Selenium	BDL 6	BDL 1.2	BDL 1.2
111	M	Silver	BDL 9.6	BDL 9.6	BDL 9.6
112	M	Thallium	BDL 0.7	BDL 0.7	BDL 0.7
113	M	Zinc	12 B	1650	1120
114	M	Barium	BDL 41.2	BDL 41.2	BDL 41.2
115	M	Iron	81 B	86 B	78 B
116	M	Manganese	BDL 2.9	36	40
117	M	Vanadium	BDL 7.6	BDL 7.6	BDL 7.6
118	M	Aluminum	59 B	55 B	38 B
120	M	Cobalt	BDL 20.7	BDL 20.7	BDL 20.7
121	M	Magnesium	BDL 1010	2560 B	3700 B
129	M	Calcium	BDL 586	9750	10700
130	M	Sodium	BDL 1210	43300	57800
131	M	Potassium	BDL 1210	3060 B	BDL 1210

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	022291CWM-001	022291CWM-001F	022291CWM-002	022291CWM-002F
		LAB SAMPLE ID	022291CWM-001	022291CWM-001F	022291CWM-002	022291CWM-002F
		SAMPLING DATE	02/22/91	02/22/91	02/22/91	02/22/91
		MATRIX	WATER	WATER	WATER	WATER
CMP	CL	COMPOUND	ug/l	ug/l	ug/l	ug/l
101	M	Antimony	BDL 0.5	BDL 0.5	5.8 B	1.1 B
102	M	Arsenic	1.7 B	BDL 1	1 B	BDL 1
103	M	Beryllium	BDL 1.4	BDL 1.4	7	BDL 1.4
104	M	Cadmium	BDL 3.3	BDL 3.3	7	BDL 3.3
105	M	Chromium	BDL 9.4	BDL 9.4	104	BDL 9.4
106	M	Copper	24 B	BDL 5.8	109	BDL 5.8
107	M	Lead	37.7	3.8	198	1.1 B
108	M	Mercury	BDL 0.2	BDL 0.2	0.53	BDL 0.2
109	M	Nickel	29 B	32 B	47	15 B
110	M	Selenium	BDL 0.5	BDL 0.5	BDL 0.5	BDL 0.5
111	M	Silver	BDL 6.8	BDL 6.8	BDL 6.8	BDL 6.8
112	M	Thallium	BDL 0.6	BDL 0.6	BDL 0.6	BDL 0.6
113	M	Zinc	4370 B	5330	2450	1610
114	M	Barium	BDL 313.	BDL 31.3	145 B	36 B
115	M	Iron	508	38 B	50700	41 B
116	M	Manganese	53	51	155	57
117	M	Vanadium	BDL 7.7	BDL 7.7	117	BDL 7.7
118	M	Aluminum	321	BDL 95.6	47900	BDL 95.6
120	M	Cobalt	BDL 7.9	BDL 7.9	BDL 7.9	BDL 7.9
121	M	Magnesium	3820 B	3690 B	7520	4930 B
129	M	Calcium	9500	9710	16100	13100
130	M	Sodium	65900	63400	63700	61500
131	M	Potassium	2280 B	2070 B	4080 B	1690 B
203	V	Benzene	BDL 5		BDL 5	
205	V	Bromoform	BDL 5		BDL 5	
206	V	Carbon tetrachloride	BDL 5		BDL 5	
207	V	Chlorobenzene	BDL 5		BDL 5	
208	V	Dibromochloromethane	BDL 5		BDL 5	
209	V	Chloroethane	BDL 10		BDL 10	
211	V	Chloroform	BDL 5		BDL 5	
212	V	Bromodichloromethane	BDL 5		BDL 5	
214	V	1,1-Dichloroethane	BDL 5		BDL 5	
215	V	1,2-Dichloroethane	BDL 5		BDL 5	
216	V	1,1-Dichloroethene	BDL 5		BDL 5	
217	V	1,2-Dichloropropane	BDL 5		BDL 5	
218	V	Cis-1,3-Dichloropropene	BDL 5		BDL 5	
219	V	Ethylbenzene	BDL 5		BDL 5	
220	V	Bromomethane	BDL 10		BDL 10	
221	V	Chloromethane	BDL 10		BDL 10	
222	V	Methylene chloride	BDL 5		BDL 5	
223	V	1,1,2,2-Tetrachloroethane	BDL 5		BDL 5	
224	V	Tetrachloroethene	BDL 5		BDL 5	
225	V	Toluene	BDL 5		BDL 5	
227	V	1,1,1-Trichloroethane	BDL 5		BDL 5	
228	V	1,1,2-Trichloroethane	BDL 5		BDL 5	
229	V	Trichloroethene	BDL 5		BDL 5	
231	V	Vinyl chloride	BDL 10		BDL 10	
250	V	Trans-1,3-Dichloropropene	BDL 5		BDL 5	
251	V	Styrene	BDL 5		BDL 5	
252	V	Acetone	9 J		BDL 10	
253	V	2-Butanone	BDL 10		BDL 10	
254	V	Carbon disulfide	BDL 5		BDL 5	
255	V	2-Hexanone	BDL 10		BDL 10	
256	V	4-Methyl-2-pentanone	BDL 10		BDL 10	
257	V	Vinyl acetate	BDL 10		BDL 10	
289	V	Xylenes (Total)	BDL 5		BDL 5	
299	V	1,2-Dichloroethene(Total)	BDL 5		BDL 5	

		SITE	COLLIERVILLE		COLLIERVILLE	
		SAMPLE ID	022291CWM-003		022291CWM-003F	
		LAB SAMPLE ID	022291CWM-003		022291CWM-003F	
		SAMPLING DATE	02/22/91		02/22/91	
		MATRIX	WATER		WATER	
CMP	CL	COMPOUND	ug/l		ug/l	
101	M	Antimony	BDL	0.5	BDL	0.5
102	M	Arsenic	BDL	1	BDL	1
103	M	Beryllium	15		BDL	1.4
104	M	Cadmium	7		BDL	3.3
105	M	Chromium	165		BDL	9.4
106	M	Copper	108		BDL	5.8
107	M	Lead	80.1		0.7	B
108	M	Mercury	BDL	0.2	BDL	0.2
109	M	Nickel	59		BDL	10.6
110	M	Selenium	BDL	0.5	BDL	0.5
111	M	Silver	BDL	6.8	BDL	6.8
112	M	Thallium	BDL	0.6	BDL	0.6
113	M	Zinc	5010		90	
114	M	Barium	636		109	B
115	M	Iron	91100		350	
116	M	Manganese	411		3	B
117	M	Vanadium	228		BDL	7.7
118	M	Aluminum	79100		460	
120	M	Cobalt	18	B	BDL	7.9
121	M	Magnesium	10800		2660	B
129	M	Calcium	19000		8820	
130	M	Sodium	738		90400	
131	M	Potassium	36000		35300	
203	V	Benzene	BDL	5		
205	V	Bromoform	BDL	5		
206	V	Carbon tetrachloride	BDL	5		
207	V	Chlorobenzene	BDL	5		
208	V	Dibromochloromethane	BDL	5		
209	V	Chloroethane	BDL	10		
211	V	Chloroform	BDL	5		
212	V	Bromodichloromethane	BDL	5		
214	V	1,1-Dichloroethane	BDL	5		
215	V	1,2-Dichloroethane	BDL	5		
216	V	1,1-Dichloroethene	BDL	5		
217	V	1,2-Dichloropropane	BDL	5		
218	V	Cis-1,3-Dichloropropene	BDL	5		
219	V	Ethylbenzene	BDL	5		
220	V	Bromomethane	BDL	10		
221	V	Chloromethane	BDL	10		
222	V	Methylene chloride	BDL	5		
223	V	1,1,2,2-Tetrachloroethane	BDL	5		
224	V	Tetrachloroethene	BDL	5		
225	V	Toluene	BDL	5		
227	V	1,1,1-Trichloroethane	BDL	5		
228	V	1,1,2-Trichloroethane	BDL	5		
229	V	Trichloroethene	BDL	5		
231	V	Vinyl chloride	BDL	10		
250	V	Trans-1,3-Dichloropropene	BDL	5		
251	V	Styrene	BDL	5		
252	V	Acetone	BDL	10		
253	V	2-Butanone	BDL	10		
254	V	Carbon disulfide	BDL	5		
255	V	2-Hexanone	BDL	10		
256	V	4-Methyl-2-pentanone	BDL	10		
257	V	Vinyl acetate	BDL	10		
289	V	Xylenes (Total)	BDL	5		
299	V	1,2-Dichloroethene(Total)	BDL	5		

COLLIERVILLE SITE: RESULTS OF SAMPLES COLLECTED FROM BACKGROUND WELLS INSTALLED APRIL, 1991; SECOND QUARTER GROUN

		SITE	COLLIERVILLE		
		SAMPLE ID	041991CMW002		
		LAB SAMPLE ID	2735		
		SAMPLING DATE	04/19/91		
		MATRIX	WATER		
CMP	CL	COMPOUND	ug/l		
101	M	Antimony	3.9	B	
102	M	Arsenic			
103	M	Beryllium	2	B	
104	M	Cadmium	BDL		3
105	M	Chromium	31		
106	M	Copper	56		
107	M	Lead	44.7		
108	M	Mercury			
109	M	Nickel	22	B	
110	M	Selenium			
111	M	Silver	BDL		8.1
112	M	Thallium			
113	M	Zinc	1290		
114	M	Barium	77	B	
115	M	Iron	15800		
116	M	Manganese	73		
117	M	Vanadium	36	B	
118	M	Aluminum	18900		
120	M	Cobalt	BDL		6.4
121	M	Magnesium	6380		
129	M	Calcium	14300		
130	M	Sodium	63000		
131	M	Potassium	2960	B	
203	V	Benzene	BDL		5
205	V	Bromoform	BDL		5
206	V	Carbon tetrachloride	BDL		5
207	V	Chlorobenzene	BDL		5
208	V	Dibromochloromethane	BDL		5
209	V	Chloroethane	BDL		10
211	V	Chloroform	BDL		5
212	V	Bromodichloromethane	BDL		5
214	V	1,1-Dichloroethane	BDL		5
215	V	1,2-Dichloroethane	BDL		5
216	V	1,1-Dichloroethene	BDL		5
217	V	1,2-Dichloropropane	BDL		5
218	V	Cis-1,3-Dichloropropene	BDL		5
219	V	Ethylbenzene	BDL		5
220	V	Bromomethane	BDL		10
221	V	Chloromethane	BDL		10
222	V	Methylene chloride	BDL		5
223	V	1,1,2,2-Tetrachloroethane	BDL		5
224	V	Tetrachloroethene	BDL		5
225	V	Toluene	BDL		5
227	V	1,1,1-Trichloroethane	BDL		5
228	V	1,1,2-Trichloroethane	BDL		5
229	V	Trichloroethene	BDL		5
231	V	Vinyl chloride	BDL		10
250	V	Trans-1,3-Dichloropropene	BDL		5
251	V	Styrene	BDL		5
252	V	Acetone	27	B	
253	V	2-Butanone	BDL		10
254	V	Carbon disulfide	BDL		5
255	V	2-Hexanone	BDL		10
256	V	4-Methyl-2-pentanone	BDL		10
257	V	Vinyl acetate	BDL		10
289	V	Xylenes (Total)	BDL		5
299	V	1,2-Dichloroethene(Total)	BDL		5

COLLIERVILLE SITE: CLP RESULTS FROM BACKGROUND WELLS INSTALLED AUGUST, 1990; FOURTH QUARTER

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	042691CMW001	042691CMW001D	041991CMW002	041991CMW002D
		LAB SAMPLE ID	2945.2	2945.2	2735	2735
		SAMPLING DATE	04/19/91	04/19/91	04/19/91	04/19/91
		MATRIX	WATER	WATER	WATER	WATER
CMP	CL	COMPOUND	ug/l	ug/l	ug/l	ug/l
101	M	Antimony	BDL 0.8	BDL 0.8	3.9 B	BDL 0.8
102	M	Arsenic	1.3 B	BDL 1		
103	M	Beryllium	BDL 1.1	BDL 1.1	2 B	BDL 1.1
104	M	Cadmium	BDL 3	BDL 3	BDL 3	BDL 3
105	M	Chromium	22	BDL 9.5	31	BDL 9.5
106	M	Copper	22 B	7 B	56	15 B
107	M	Lead	27	2.3 B	44.7	2.6 B
108	M	Mercury	BDL 0.2	BDL 0.2		
109	M	Nickel	21 B	BDL 8.6	22 B	9 B
110	M	Selenium	BDL 0.5	BDL 0.5		
111	M	Silver	BDL 8.1	BDL 8.1	BDL 8.1	BDL 8.1
112	M	Thallium	BDL 0.7	BDL 0.7		
113	M	Zinc	5290	6680	1290	1080
114	M	Barium	45 B	36 B	77 B	42 B
115	M	Iron	2470	BDL 97.7	15800	415
116	M	Manganese	58	45	73	46
117	M	Vanadium	11 B	BDL 4.2	36 B	BDL 4.2
118	M	Aluminum	2460	BDL 195	18900	345
120	M	Cobalt	7 B	BDL 6.4	BDL 6.4	BDL 6.4
121	M	Magnesium	4200 B	3940 B	6380	5730
129	M	Calcium	10300	10500	14300	13900
130	M	Sodium	62600	60700	63000	64500
131	M	Potassium	970 B	860 B	2960 B	1350 B
203	V	Benzene	BDL 5		BDL 5	
205	V	Bromoform	BDL 5		BDL 5	
206	V	Carbon tetrachloride	BDL 5		BDL 5	
207	V	Chlorobenzene	BDL 5		BDL 5	
208	V	Dibromochloromethane	BDL 5		BDL 5	
209	V	Chloroethane	BDL 10		BDL 10	
211	V	Chloroform	BDL 5		BDL 5	
212	V	Bromodichloromethane	BDL 5		BDL 5	
214	V	1,1-Dichloroethane	BDL 5		BDL 5	
215	V	1,2-Dichloroethane	BDL 5		BDL 5	
216	V	1,1-Dichloroethene	BDL 5		BDL 5	
217	V	1,2-Dichloropropane	BDL 5		BDL 5	
218	V	Cis-1,3-Dichloropropene	BDL 5		BDL 5	
219	V	Ethylbenzene	BDL 5		BDL 5	
220	V	Bromomethane	BDL 10		BDL 10	
221	V	Chloromethane	BDL 10		BDL 10	
222	V	Methylene chloride	25 B		BDL 5	
223	V	1,1,2,2-Tetrachloroethane	BDL 5		BDL 5	
224	V	Tetrachloroethene	BDL 5		BDL 5	
225	V	Toluene	BDL 5		BDL 5	
227	V	1,1,1-Trichloroethane	BDL 5		BDL 5	
228	V	1,1,2-Trichloroethane	BDL 5		BDL 5	
229	V	Trichloroethene	BDL 5		BDL 5	
231	V	Vinyl chloride	BDL 10		BDL 10	
250	V	Trans-1,3-Dichloropropene	BDL 5		BDL 5	
251	V	Styrene	BDL 5		BDL 5	
252	V	Acetone	4 J		27 B	
253	V	2-Butanone	BDL 10		BDL 10	
254	V	Carbon disulfide	BDL 5		BDL 5	
255	V	2-Hexanone	BDL 10		BDL 10	
256	V	4-Methyl-2-pentanone	BDL 10		BDL 10	
257	V	Vinyl acetate	BDL 10		BDL 10	
289	V	Xylenes (Total)	BDL 5		BDL 5	
299	V	1,2-Dichloroethene(Total)	BDL 5		BDL 5	

COLLIERVILLE SITE: CLP RESULTS FROM BACKGROUND WELLS INSTALLED AUGUST, 1990; FOURTH QUARTER

		SITE	COLLIERVILLE		COLLIERVILLE	
		SAMPLE ID	042691CMW003		042691CMW003D	
		LAB SAMPLE ID	2946		2946	
		SAMPLING DATE	04/19/91		04/19/91	
		MATRIX	WATER		WATER	
CMP	CL	COMPOUND	ug/l		ug/l	
101	M	Antimony	BDL	0.8	BDL	0.8
102	M	Arsenic	BDL	1	BDL	1
103	M	Beryllium	4 B		BDL	1.1
104	M	Cadmium	BDL	3	BDL	3
105	M	Chromium	42		BDL	9.5
106	M	Copper	49		7 B	
107	M	Lead	59.4		1 B	
108	M	Mercury	BDL	0.2	0.24	
109	M	Nickel	13 B		BDL	8.6
110	M	Selenium	BDL	0.5	BDL	0.5
111	M	Silver	BDL	8.1	BDL	8.1
112	M	Thallium	BDL	0.7	BDL	0.7
113	M	Zinc	6860		3750	
114	M	Barium	340		195 B	
115	M	Iron	23000		101	
116	M	Manganese	122		21	
117	M	Vanadium	57		BDL	4.2
118	M	Aluminum	18100		BDL	195
120	M	Cobalt	8 B		BDL	6.4
121	M	Magnesium	5330		3860 B	
129	M	Calcium	17200		15300	
130	M	Sodium	50100		50700	
131	M	Potassium	15900		15000	
203	V	Benzene	BDL	5		
205	V	Bromoform	BDL	5		
206	V	Carbon tetrachloride	BDL	5		
207	V	Chlorobenzene	BDL	5		
208	V	Dibromochloromethane	BDL	5		
209	V	Chloroethane	BDL	10		
211	V	Chloroform	BDL	5		
212	V	Bromodichloromethane	BDL	5		
214	V	1,1-Dichloroethane	BDL	5		
216	V	1,2-Dichloroethane	BDL	5		
216	V	1,1-Dichloroethene	BDL	5		
217	V	1,2-Dichloropropane	BDL	5		
218	V	Cis-1,3-Dichloropropene	BDL	5		
219	V	Ethylbenzene	BDL	5		
220	V	Bromomethane	BDL	10		
221	V	Chloromethane	BDL	10		
222	V	Methylene chloride	39 B			
223	V	1,1,2,2-Tetrachloroethane	BDL	5		
224	V	Tetrachloroethene	BDL	5		
225	V	Toluene	BDL	5		
227	V	1,1,1-Trichloroethane	BDL	5		
228	V	1,1,2-Trichloroethane	BDL	5		
229	V	Trichloroethene	BDL	5		
231	V	Vinyl chloride	BDL	10		
250	V	Trans-1,3-Dichloropropene	BDL	5		
251	V	Styrene	BDL	5		
252	V	Acetone	BDL	10		
253	V	2-Butanone	BDL	10		
254	V	Carbon disulfide	BDL	5		
255	V	2-Hexanone	BDL	10		
256	V	4-Methyl-2-pentanone	BDL	10		
257	V	Vinyl acetate	BDL	10		
289	V	Xylenes (Total)	BDL	5		
299	V	1,2-Dichloroethene(Total)	BDL	5		

METHOD 8010 RESULTS

		SITE	COLLIERVILLE
		SAMPLE ID	041991CMW002
		SAMPLING DATE	04/19/91
		MATRIX	WATER
CMP	CL	COMPOUND	ug/l
203	V	Benzene	
205	V	Bromoform	ND
206	V	Carbon tetrachloride	ND
207	V	Chlorobenzene	ND
208	V	Dibromochloromethane	ND
209	V	Chloroethane	ND
211	V	Chloroform	ND
212	V	Bromodichloromethane	ND
214	V	1,1-Dichloroethane	ND
215	V	1,2-Dichloroethane	ND
216	V	1,1-Dichloroethene	
217	V	1,2-Dichloropropane	ND
218	V	Cis-1,3-Dichloropropene	ND
219	V	Ethylbenzene	
220	V	Bromomethane	ND
221	V	Chloromethane	ND
222	V	Methylene chloride	ND
223	V	1,1,2,2-Tetrachloroethane	ND
224	V	Tetrachloroethene	ND
225	V	Toluene	
227	V	1,1,1-Trichloroethane	ND
228	V	1,1,2-Trichloroethane	ND
229	V	Trichloroethene	ND
231	V	Vinyl chloride	ND
250	V	Trans-1,3-Dichloropropene	ND
251	V	Styrene	
252	V	Acetone	
253	V	2-Butanone	
254	V	Carbon disulfide	
255	V	2-Hexanone	
256	V	4-Methyl-2-pentanone	
257	V	Vinyl acetate	
289	V	Xylenes (Total)	
299	V	1,2-Dichloroethene(Total)	ND
	V	Trihlorodifluoromethane	ND
	V	1,1-Dichloroethylene	ND
	V	2-Chloroethylvinylether	ND
	V	1,3-Dichlorobenzene	ND
	V	1,2-Dichlorobenzene	ND
	V	1,4-Dichlorobenzene	ND

COLLIERVILLE SITE: RESULTS OF THIRD QUARTER GROUNDWATER SAMPLING EVENT: August, 1991

SITE			COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
SAMPLE ID			082691CMW001	082691CMW001	082791CMW002	082791CMW002	082791CMW003
LAB SAMPLE ID			5095.8	5095.8 D	5210.1	5210.1 D	5211.0
SAMPLING DATE			08/26/91	08/26/91	08/27/91	08/27/91	082791
MATRIX			WATER	WATER	WATER	WATER	WATER
CMPD	CL	COMPOUND	ug/l	ug/l	ug/l	ug/l	ug/l
101	M	Antimony	BDL 14.3	BDL 14.3	BDL 14.3	BDL 14.3	BDL 14.3
102	M	Arsenic	2 B	1.5 B	BDL 1	BDL 1	1.4 B
103	M	Beryllium	BDL 0.6	BDL 0.6	1.5 B	BDL 0.6	3 B
104	M	Cadmium	BDL 3.2	BDL 3.2	3.8 B	BDL 3.2	BDL 3.2
105	M	Chromium	29.9	BDL 3.3	105	BDL 3.3	118
106	M	Copper	19.6 B	8.1 B	84.7	13.4 B	94.7
107	M	Lead	28.2	0.8 B	42	1.3 B	52.6
108	M	Mercury	BDL 0.2	0.26	0.34	BDL 0.2	BDL 0.2
109	M	Nickel	45.5	36 B	37.7 B	BDL 10	27.5 B
110	M	Selenium	1 B	1.4 B	BDL 0.5	BDL 0.5	BDL 0.5
111	M	Silver	BDL 2.6	BDL 2.6	BDL 2.6	BDL 2.6	BDL 2.6
112	M	Thallium	BDL 0.6	BDL 0.6	BDL 0.6	0.6 B	BDL 0.6
113	M	Zinc	3350	2170	1080	1390	5950
114	M	Barium	59.3 B	44.6 B	148 B	49.6 B	291
115	M	Iron	4640	78.1 B	58100	138	4350
116	M	Manganese	82	69.7	166	53.4	176
117	M	Vanadium	21.2 B	BDL 3.2	128	BDL 3.2	119
118	M	Aluminum	3890	BDL 23.2	46300	128 B	51300
120	M	Cobalt	5.8 B	6 B	8.5 B	5 B	10.7 B
121	M	Magnesium	5250	4980 B	8570	6160	6630
129	M	Calcium	12500	12100	17900	14600	15300
130	M	Sodium	72700	72600	97000	96300	16100
131	M	Potassium	4010 B	3570 B	3110 B	1010 B	4930 B
203	V	Benzene	BDL 5		BDL 5		BDL 5
205	V	Bromoform	BDL 5		BDL 5		BDL 5
206	V	Carbon tetrachloride	BDL 5		BDL 5		BDL 5
207	V	Chlorobenzene	BDL 5		BDL 5		BDL 5
208	V	Dibromochloromethane	BDL 5		BDL 5		BDL 5
209	V	Chloroethane	BDL 10		BDL 10		BDL 10
211	V	Chloroform	BDL 5		BDL 5		BDL 5
212	V	Bromodichloromethane	BDL 5		BDL 5		BDL 5
214	V	1,1-Dichloroethane	BDL 5		BDL 5		BDL 5
215	V	1,2-Dichloroethane	BDL 5		BDL 5		BDL 5
216	V	1,1-Dichloroethene	BDL 5		BDL 5		BDL 5
217	V	1,2-Dichloropropane	BDL 5		BDL 5		BDL 5
218	V	Cis-1,3-Dichloropropene	BDL 5		BDL 5		BDL 5
219	V	Ethylbenzene	BDL 5		BDL 5		BDL 5
220	V	Bromomethane	BDL 10		BDL 10		BDL 10
221	V	Chloromethane	BDL 10		BDL 10		BDL 10
222	V	Methylene chloride	BDL 5		BDL 5		BDL 5
223	V	1,1,2,2-Tetrachloroethane	BDL 5		BDL 5		BDL 5
224	V	Tetrachloroethene	BDL 5		BDL 5		BDL 5
225	V	Toluene	BDL 5		BDL 5		BDL 5
227	V	1,1,1-Trichloroethane	BDL 5		BDL 5		BDL 5
228	V	1,1,2-Trichloroethane	BDL 5		BDL 5		BDL 5
229	V	Trichloroethene	BDL 5		BDL 5		BDL 5
231	V	Vinyl chloride	BDL 10		BDL 10		BDL 10
250	V	Trans-1,3-Dichloropropene	BDL 5		BDL 5		BDL 5
251	V	Styrene	BDL 5		BDL 5		BDL 5
252	V	Acetone	BDL 10		BDL 10		BDL 10
253	V	2-Butanone	BDL 10		BDL 10		BDL 10
254	V	Carbon disulfide	BDL 5		BDL 5		BDL 5
255	V	2-Hexanone	BDL 10		BDL 10		BDL 10
256	V	4-Methyl-2-pentanone	BDL 10		BDL 10		BDL 10
257	V	Vinyl acetate	BDL 10		BDL 10		BDL 10
289	V	Xylenes (Total)	BDL 5		BDL 5		BDL 5
299	V	1,2-Dichloroethene(Total)	BDL 5		BDL 5		BDL 5

		SITE	COLLIERVILLE	
		SAMPLE ID	082791CMW003	
		LAB SAMPLE ID	5211.0 D	
		SAMPLING DATE	082791	
		MATRIX	WATER	
CMPD	CL	COMPOUND	ug/l	
101	M	Antimony	BDL	14.3
102	M	Arsenic	BDL	1
103	M	Beryllium	BDL	0.6
104	M	Cadmium	BDL	3.2
105	M	Chromium	BDL	3.3
106	M	Copper	9.4 B	
107	M	Lead	0.8 B	
108	M	Mercury	BDL	0.2
109	M	Nickel	BDL	10
110	M	Selenium	BDL	0.5
111	M	Silver	BDL	2.6
112	M	Thallium	BDL	0.6
113	M	Zinc	3630	
114	M	Barium	97.6 B	
115	M	Iron	76.5 B	
116	M	Manganese	13.9 B	
117	M	Vanadium	BDL	3.2
118	M	Aluminum	81.4 B	
120	M	Cobalt	BDL	4
121	M	Magnesium	4540 B	
129	M	Calcium	13200	
130	M	Sodium	17100	
131	M	Potassium	2670 B	
203	V	Benzene		
205	V	Bromoform		
206	V	Carbon tetrachloride		
207	V	Chlorobenzene		
208	V	Dibromochloromethane		
209	V	Chloroethane		
211	V	Chloroform		
212	V	Bromodichloromethane		
214	V	1,1-Dichloroethane		
215	V	1,2-Dichloroethane		
216	V	1,1-Dichloroethene		
217	V	1,2-Dichloropropane		
218	V	Cis-1,3-Dichloropropene		
219	V	Ethylbenzene		
220	V	Bromomethane		
221	V	Chloromethane		
222	V	Methylene chloride		
223	V	1,1,2,2-Tetrachloroethane		
224	V	Tetrachloroethene		
225	V	Toluene		
227	V	1,1,1-Trichloroethane		
228	V	1,1,2-Trichloroethane		
229	V	Trichloroethene		
231	V	Vinyl chloride		
250	V	Trans-1,3-Dichloropropene		
251	V	Styrene		
252	V	Acetone		
253	V	2-Butanone		
254	V	Carbon disulfide		
255	V	2-Hexanone		
256	V	4-Methyl-2-pentanone		
257	V	Vinyl acetate		
289	V	Xylenes (Total)		
299	V	1,2-Dichloroethene(Total)		

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	111891CMW001	111891CMW001D	111491CMW002	111491CMW002D
		LAB SAMPLE ID	111891CMW001	111891CMW001D	111491CMW002	111491CMW002D
		SAMPLING DATE	11/18/91	11/18/91	11/18/91	11/18/91
		MATRIX	WATER	WATER	WATER	WATER
CMPD	CL	COMPOUND	ug/kg	ug/kg	ug/l	ug/l
101	M	Antimony	1.2 B	1.1 B	BDL 0.8	1.7 B
102	M	Arsenic	1.5 B	BDL 1.4	2.2 B	BDL 1
103	M	Beryllium	BDL 1	BDL 1	6	BDL 1
104	M	Cadmium	BDL 4	BDL 4	BDL 4	BDL 4
105	M	Chromium	10	BDL 9	111	BDL 9
106	M	Copper	6 B	7 B	93	5 B
107	M	Lead	22.6	0.6 B	63.5	0.6 B
108	M	Mercury	BDL 0.2	BDL 0.2	0.7	BDL 0.2
109	M	Nickel	57	83	57	BDL 8
110	M	Selenium	BDL 1.2	BDL 1.2	BDL 1.2	1.2 B
111	M	Silver	BDL 5	8 B	BDL 5	BDL 5
112	M	Thallium	BDL 0.5	BDL 0.5	BDL 0.6	BDL 0.6
113	M	Zinc	3560	2130	111	39
114	M	Barium	46 B	50 B	223	44 B
115	M	Iron	1930	169	48700	141
116	M	Manganese	93	123	187	BDL 2
117	M	Vanadium	11 B	BDL 9	110	BDL 9
118	M	Aluminum	827	BDL 44	51400	BDL 44
120	M	Cobalt	BDL 10	BDL 10	18 B	BDL 10
121	M	Magnesium	5440	6190	6110	3750 B
129	M	Calcium	16000	21300	13500	10500
130	M	Sodium	72600	72400	70100	69000
131	M	Potassium	4410 B	3400 B	4540 B	921 B
203	V	Benzene	10	10	BDL 5	
205	V	Bromoform	BDL 5		BDL 5	
206	V	Carbon tetrachloride	BDL 5		BDL 5	
207	V	Chlorobenzene	BDL 5		BDL 5	
208	V	Dibromochloromethane	BDL 5		BDL 5	
209	V	Chloroethane	BDL 10		BDL 10	
211	V	Chloroform	BDL 5		BDL 5	
212	V	Bromodichloromethane	BDL 5		BDL 5	
214	V	1,1-Dichloroethane	BDL 5		BDL 5	
215	V	1,2-Dichloroethane	BDL 5		BDL 5	
216	V	1,1-Dichloroethene	BDL 5		BDL 5	
217	V	1,2-Dichloropropane	BDL 5		BDL 5	
218	V	Cis-1,3-Dichloropropene	BDL 5		BDL 5	
219	V	Ethylbenzene	BDL 5		BDL 5	
220	V	Bromomethane	BDL 10		BDL 10	
221	V	Chloromethane	BDL 10		BDL 10	
222	V	Methylene chloride	BDL 5		BDL 5	
223	V	1,1,2,2-Tetrachloroethane	BDL 5		BDL 5	
224	V	Tetrachloroethene	BDL 5		BDL 5	
225	V	Toluene	BDL 5		BDL 5	
227	V	1,1,1-Trichloroethane	BDL 5		BDL 5	
228	V	1,1,2-Trichloroethane	BDL 5		BDL 5	
229	V	Trichloroethene	BDL 5		BDL 5	
231	V	Vinyl chloride	BDL 10		BDL 10	
250	V	Trans-1,3-Dichloropropene	BDL 5		BDL 5	
251	V	Styrene	BDL 5		BDL 5	
252	V	Acetone	BDL 10		BDL 10	
253	V	2-Butanone	BDL 10		BDL 10	
254	V	Carbon disulfide	BDL 5		BDL 5	
255	V	2-Hexanone	BDL 10		BDL 10	
256	V	4-Methyl-2-pentanone	BDL 10		BDL 10	
257	V	Vinyl acetate	BDL 10		BDL 10	
289	V	Xylenes (Total)	BDL 5		BDL 5	
299	V	1,2-Dichloroethene(Total)	BDL 5		BDL 5	

		SITE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	111491CMW003	111491CMW003D
		LAB SAMPLE ID	111491CMW003	111491CMW003D
		SAMPLING DATE	11/14/91	11/14/91
		MATRIX	WATER	WATER
CMPD	CL	COMPOUND	ug/l	ug/l
101	M	Antimony	BDL 0.8	BDL 0.8
102	M	Arsenic	1.5 B	BDL 1
103	M	Beryllium	3 B	BDL 1
104	M	Cadmium	BDL 4	BDL 4
105	M	Chromium	97	BDL 9
106	M	Copper	106	6 B
107	M	Lead	40.6	BDL 0.6
108	M	Mercury	0.2	BDL 0.2
109	M	Nickel	29 B	BDL 8
110	M	Selenium	BDL 1.2	1.2 B
111	M	Silver	BDL 5	BDL 5
112	M	Thallium	BDL 0.6	BDL 0.6
113	M	Zinc	2010	1090
114	M	Barium	174 B	61 B
115	M	Iron	32400	158
116	M	Manganese	122	11 B
117	M	Vanadium	87	BDL 9
118	M	Aluminum	41900	63 B
120	M	Cobalt	10 B	BDL 10
121	M	Magnesium	5880	3910 B
129	M	Calcium	13700	11500
130	M	Sodium	13200	12900
131	M	Potassium	3980 B	1690 B
203	V	Benzene	BDL 5	
205	V	Bromoform	BDL 5	
206	V	Carbon tetrachloride	BDL 5	
207	V	Chlorobenzene	BDL 5	
208	V	Dibromochloromethane	BDL 5	
209	V	Chloroethane	BDL 10	
211	V	Chloroform	BDL 5	
212	V	Bromodichloromethane	BDL 5	
214	V	1,1-Dichloroethane	BDL 5	
215	V	1,2-Dichloroethane	BDL 5	
216	V	1,1-Dichloroethene	BDL 5	
217	V	1,2-Dichloropropane	BDL 5	
218	V	Cis-1,3-Dichloropropene	BDL 5	
219	V	Ethylbenzene	BDL 5	
220	V	Bromomethane	BDL 10	
221	V	Chloromethane	BDL 10	
222	V	Methylene chloride	BDL 5	
223	V	1,1,2,2-Tetrachloroethane	BDL 5	
224	V	Tetrachloroethene	BDL 5	
225	V	Toluene	BDL 5	
227	V	1,1,1-Trichloroethane	BDL 5	
228	V	1,1,2-Trichloroethane	BDL 5	
229	V	Trichloroethene	BDL 5	
231	V	Vinyl chloride	BDL 10	
250	V	Trans-1,3-Dichloropropene	BDL 5	
251	V	Styrene	BDL 5	
252	V	Acetone	BDL 10	
253	V	2-Butanone	BDL 10	
254	V	Carbon disulfide	BDL 5	
255	V	2-Hexanone	BDL 10	
256	V	4-Methyl-2-pentanone	BDL 10	
257	V	Vinyl acetate	BDL 10	
289	V	Xylenes (Total)	BDL 5	
299	V	1,2-Dichloroethene(Total)	BDL 5	

APPENDIX K

AQUIFER PUMP TEST

DAMES & MOORE A PROFESSIONAL LIMITED PARTNERSHIP
644 LINN STREET, SUITE 501, CINCINNATI, OHIO 45203 (513) 651-3440

August 10, 1988

Environmental and Safety Designs, Inc.
5705 Stage Road, Suite 212
Memphis, TN 38134

Attention: Mr. Phillip G. Coop
Vice President

Gentlemen:

Report
Aquifer Pumping Test of the West Well
Collierville Municipal Wellfield
Carrier Corporation
Collierville, Tennessee

This letter transmits our report entitled Aquifer Pumping Test of the West Well, Collierville Municipal Wellfield. This aquifer test was conducted on behalf of the Carrier Corporation whose plant, located at 97 South Byhalia Road, is adjacent to the wellfield.

Our analysis of this aquifer test has demonstrated that pumping either well of the Collierville Municipal Wellfield can influence ground water levels in the lower aquifer unit across Carrier Corporation's entire plant site. The average transmissivity value computed from this test is 242,500 gallons per day per foot.

Ground water in the lower aquifer or "Memphis Sands" appears to flow in a northwest direction, from the Carrier plant toward the wellfield, under both pumping and nonpumping conditions. However, drawdown from pumping at the wellfield increases the rate of movement both horizontally and vertically within the lower aquifer zone.

Recharge through the overlying "Jackson Clay" is relatively small because of low permeability across the aquitard unit. However, recharge rates of 0.9 to 18.8 gallons per minute per acre are computed across this zone, suggesting that leakage through the "Jackson Clay" unit may be a significant pathway for TCE to enter the "Memphis Sands" aquifer.

Very truly yours,

DAMES & MOORE

Sydney G. Smith

Sydney G. Smith
Geologist

Richard K. Hosfeld

Richard K. Hosfeld, C.P.G.
Project Manager

Fred W. Erdmann

Fred W. Erdmann, P.E., C.P.G.
Associate

SGS/RKH/FWE/d101

REPORT
AQUIFER PUMPING TEST OF THE WEST WELL
COLLIERVILLE MUNICIPAL WELLFIELD

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

JOB NO. 14750-004-017
AUGUST 10, 1988

Dames & Moore

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1.0 INTRODUCTION

This report presents the results of an aquifer pumping test performed on the west well of the Collierville municipal wellfield in Collierville, Tennessee. The test was conducted to compute aquifer characteristics and to estimate the effectiveness of the confining aquitard separating the upper aquifer from the lower aquifer that supplies ground water to the municipal wells. The aquitard is a non-uniform silty clay stratum ranging from less than a foot to 60 feet thick.

The west well of the Collierville municipal wellfield was chosen as the pumping well for the aquifer test. Both the east well and Monitor Well 14 were chosen as observation wells because of their proximity to the west well and their zone of completion. These three wells were monitored with transducer/data logger systems to yield data for the aquifer pumping test analysis (see Appendix A). Both the west and the east well of the Collierville municipal wellfield (hereafter called "east well" and "west well") are screened in a confined or semiconfined lower aquifer. Boring logs depicting the soil strata of these wells were recorded by Layne-Central Drilling Company and are shown in Appendix B. Monitor Well 14 is also screened in the lower aquifer.

Aquifer pumping test field activities included monitoring of antecedent water levels in the west and east well and Monitor Well 14 prior to the start of the pumping test. Activities also included water level measurements recorded during pumping and recovery in the wells.

2.0 SUMMARY OF FINDINGS

An aquifer pumping test performed on the west well was conducted to interpret the aquifer parameters and hydraulic relationships between the upper aquifer and the lower aquifer, which are separated by an aquitard.

Analysis of the lower aquifer, in response to a constant pumping discharge rate of about 470 gallons per minute (gpm) for 64.5 hours, yielded an average transmissivity value of approximately 242,500 gallons per day (gpd) per foot. The average horizontal permeability value, using a saturated thickness of 200 feet, was calculated to be 1,212.5 gpd/ft^2. Storage coefficient values range from approximately 0.001 to 0.0004.

Vertical permeability values for the confining clay aquitard were calculated using the Walton Leaky Artesian Aquifer analysis. Values of 0.62 gpd/ft^2 and 0.03 gpd/ft^2 for the east well and Monitor Well 14 were calculated, respectively. Laboratory permeability analyses were performed on core samples from the aquitard unit by Hall, Blake and Associates, Inc., the reported permeability values were 9.3×10^{-3} gpd/ft^2 to 5.3×10^{-4} gpd/ft^2.

Observation wells in the upper and lower aquifer were monitored during pumping for changes in water levels. The deep observation wells showed a significant influence caused by pumping. Only some of the wells in the shallow aquifer (MW-3, MW-15, MW-19) appeared to be influenced by pumping (see Table 1). Antecedent water levels recorded for 4 days prior to the start of the pump test indicate fluctuations in the ground water level of approximately 0.8 foot. Observation wells monitored during pumping, indicate a maximum rise in ground water levels of approximately 0.5 foot between 2,500 to 4,000 minutes after the start of the constant rate pumping test.

The rise in monitor well water levels, towards the later stages of the constant rate pumping test, is contrary to the expected response. The cause of the rise cannot be positively identified, but may be a result of earth tides or changes in barometric pressure.

3.0 SITE HYDROGEOLOGY

Surficial soil deposits, including silts and clays within the area of study, range from about 10 to 20 feet in thickness. Beneath the surficial soil is a fluvial terrace deposit

3.0 SITE HYDROGEOLOGY

3.1 AQUIFER AND AQUITARD UNITS

Surficial soil deposits, including silts and clays within the area of study, range from about 10 to 20 feet in thickness. Beneath the surficial soil is a fluvial terrace deposit consisting of sand, gravel, silt, and clay of varying proportions, most likely deposited by a former course of Nonconnah Creek or other ancient drainage system. The saturated portion of this deposit is referred to as the upper aquifer. The upper aquifer thickness in the area of study ranges from 12 feet at MW-6 to an undetermined thickness where the aquitard appears to be non-existent at Boring 36.

The Jackson clay unit, which forms the aquitard, exists immediately below the upper aquifer. It consists of sand, silt, clay, and lignite. Borings drilled within the study area suggest that the aquitard thickness ranges from zero feet at Boring 36 to approximately 21 feet thick at MW-6. Layne-Central Drilling Company's logs indicate a clay unit thickness of 60 feet for both the west and east municipal wells, at the northwest corner of the site.

The Collierville, Tennessee municipal wells provide the deepest available record of soil strata within the area of study. Drilling logs indicate total well depths of 303 and 338 feet for the west and east wells, respectively. These wells were both installed with 20-foot well screens completed in the lower aquifer formation known as the Memphis sands. The Memphis sands are also known as the 500-foot sands and have recorded thicknesses of up to 890 feet in Shelby County.

3.2 GROUND WATER LEVELS

Two distinct piezometric surfaces occur at the Carrier site. The non-pumping piezometric surface of the lower aquifer indicates ground water flows to the northwest (see Figure 1) with a hydraulic gradient of approximately 0.0017 ft/ft. Measurements taken from deep wells completed in the lower aquifer, around 1,550 minutes after the start of the aquifer test, indicate the same direction of flow and horizontal gradient (see Figure 2).

The non-pumping piezometric surface of the upper aquifer indicates that ground water flows radially away from the northwest to the southeast and northeast (see

consisting of sand, gravel, silt, and clay of varying proportions, most likely deposited by a former course of Nonconnah Creek or other ancient drainage system. The saturated portion of this deposit is referred to as the upper aquifer. The upper aquifer thickness in the area of study ranges from 12 feet at MW-6 to an undetermined thickness where the aquitard appears to be non-existent at Boring 36.

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Two distinct piezometric surfaces occur at the Carrier site. The non-pumping piezometric surface of the lower aquifer indicates ground water flows to the northwest (see Figure 1) with a hydraulic gradient of approximately 0.0017 ft/ft. Measurements taken from deep wells completed in the lower aquifer, around 1,550 minutes after the start of the aquifer test, indicate the same direction of flow and horizontal gradient (see Figure 2).

The non-pumping piezometric surface of the upper aquifer indicates that ground water flows radially away from the recreation area to the southeast and northeast (see Figure 3). The maximum horizontal gradient in the upper aquifer appears to be 0.067 ft/ft in the vicinity of MW-5 and MW-15. After approximately 1,550 minutes of pumping, the piezometric surface of the upper aquifer appears relatively unchanged (see Figure 4). Data used to generate piezometric maps are shown in Appendix C.

Three sets of shallow and deep well pairs were used to compute the vertical hydraulic gradient between the upper and lower aquifers, prior to and during pumping. Shallow and deep well sets MW-5,6; MW-11,12; and MW-13,14 were used for this analysis and are shown on Figures 5 through 10.

The vertical hydraulic gradient ranges approximately from 1.1 ft/ft to 0.26 ft/ft before pumping and 1.0 ft/ft to 0.28 ft/ft around 1,550 minutes after the start of pumping. These values represent the available pressure per foot imposed on the confining aquitard and do not appear significantly changed during pumping. Vertical gradient values were obtained by determining the difference in hydraulic head between the upper and lower aquifer and dividing this value by the aquitard thickness.

4.0 AQUIFER TESTING PROCEDURES

Field activities for the aquifer pumping test project began with the shutdown of pumping wells at the Collierville wellfield. Pressure transducers/data logger systems were installed on April 14 in the municipal wells and in Monitor Well 14 a few days after shutdown. The constant rate aquifer pumping test was started at 3:00 pm on April 18, 1988. The west well was pumped at a constant discharge rate of approximately 470 gpm for 64.5 hours (see Table 3). During pumping of monitor wells on the Carrier site, water level changes were monitored with electric water-level indicators. The pump was shut down at 7:30 am April 21, 1988, and recovery data were collected in the wells until 12:00 pm, April 21, 1988. The pumping rate was measured at the west well by a full flow water meter, installed just prior to the test date. Water from pumping the west well was discharged into a storage tank that supplies the city of Collierville.

4.1 DATA COLLECTION

Programmable Hermit SE 1000B transducer/data logger systems were installed prior to the start of the aquifer test in the west well, east well, and in Monitor Well 14. The transducer data were used to generate antecedent water level graphs, time-drawdown graphs (semi-log and full-log), time-recovery graphs (semi-log), and a distance drawdown graph (semi-log). These graphs are displayed in Appendix E.

Sixteen observation wells were monitored on the Carrier site with electric water-level indicators during the aquifer pumping test. Numerical data from the observation wells

are displayed in Appendix F and are shown graphically in Appendix G. Table 1 lists the observation wells monitored on the Carrier site and the available data to date regarding total depth, screen length, well bottom elevation, and a remark indicating probable hydraulic connection to the lower aquifer is shown in Appendix G.

5.0. DATA ANALYSIS

5.1 ANTECEDENT WATER LEVEL INTERPRETATION

Antecedent water level data generally indicate a rise in the piezometric surface, immediately prior to the start of the aquifer test. Periodic fluctuations occurring about every 6 hours may be evidence of earth tides or barometric influences. Mr. William Parks of the U.S.G.S. office in Memphis, Tennessee, reported similar trends observed in reports from other Shelby County wells screened in the Memphis Sands. The fluctuations appear to vary widely in magnitude and were not interpreted for drawdown adjustments of the aquifer pumping test data.

5.2 VERTICAL PERMEABILITY OF THE AQUITARD

Permeability tests of the confining clay unit were performed on core samples recovered from Shelby tubes by Hall, Blake and Associates, Inc. of Memphis, Tennessee. Results of seven permeability tests were recorded and ranged in value from 4.4×10^{-7} cm/sec to 2.5×10^{-8} cm/sec (see Appendix D).

Vertical permeability values estimated using the Walton Leaky Artesian Aquifer pumping test analysis yielded values of 1.7×10^{-6} cm/sec to 2.9×10^{-5} cm/sec (see Table 2). Using a unit vertical gradient of 1.0 ft/ft, leakage through the confining clay unit over an area of 1 acre ranges from 27,000 gpd to 1,300 gpd for permeability values of 2.9×10^{-5} cm/s and 1.7×10^{-6} cm/s, respectively.

Laboratory results reported by Hall, Blake and Associates, Inc. are thought to be unrepresentative because only small samples of aquitard materials were tested, without the influence of discontinuities. Permeability values obtained by the Walton Leaky Artesian Aquifer analysis are judged to be more representative over the areal extent of the study area.

5.3 AQUIFER PUMPING TEST EVALUATION

Data collected during the pumping test were interpreted using five methods of analysis to determine transmissivity and the coefficient of storage. The methods of analysis used include the Theis, time-drawdown, distance-drawdown, and time-recovery methods, which assume unsteady-state flow to the pumping well in a confined aquifer, and the Walton Leaky Artesian method assumes unsteady-state flow in a semi-confined aquifer.

These methods of aquifer analysis are based on assumptions that describe the physical characteristics of an aquifer and the well or wells that penetrate it. The assumptions are ideal conditions that are rarely true for most aquifer pumping tests; however, valid results may be obtained by determining a mean value from the results of analyses that best approximate these assumptions.

The following section is a description of the results obtained. Results are displayed in tabular form in Table 2.

5.3.1 Time-Drawdown Method

The semi-log plot of time versus drawdown for the west city well indicated two legs to the curve, with the break at approximately 50 minutes. Values of transmissivity (T) and storage coefficient (S) for both legs of the curve were calculated. For the first leg of the curve, the transmissivity was 105,103 gpd/ft; the second leg of the curve yielded a value of 400,258 gpd/ft. The east well time-drawdown curve also yielded two legs, with values of T_1=190,892 and T_2=295,429 gpd/ft. Associated storage coefficient values were 0.81 and 0.43, respectively. These values for the storage coefficient are unreasonable for a confined or semi-confined aquifer. Monitor Well 14 was interpreted as having only one leg to the curve, with a transmissivity value of 302,634 gpd/ft and a storage coefficient value of 0.69.

5.3.2 Time-Recovery Method

The time-recovery analysis for the west well provided a transmissivity value of 172,333 gpd/ft. The time-recovery curve for the east well indicated two obvious legs to the curve, with the first leg transmissivity value of 221,571 gpd/ft and a storage coefficient value of 0.9, which is not valid due to its great magnitude. Reasonable values for storage

coefficients in confined aquifers range from 0.001 to 0.00001. The second leg of the curve provided a transmissivity value of 364,941 gpd/ft and a storage coefficient value of 0.09. Monitor Well 14 yielded a transmissivity value of 376,000 gpd/ft and a storage coefficient value of 0.043.

5.3.3 Theis Method

The Theis method provided fair results for transmissivity for the east well and Monitor Well No. 14, but did not yield reasonable values of the storage coefficient. Data from the west well could not be interpreted on the Theis-type curve. Values of transmissivity for the east well and Monitor Well 14 are 207,162 and 215,448 gpd/ft, respectively.

5.3.4. Walton Leaky Artesian Aquifer Method

This analysis provided a transmissivity value of 250,521 gpd/ft for both the east well and Monitor Well 14. The curve for the west well could not be interpreted with the Leaky Artesian type-curve due to the lack of early drawdown data. Storage coefficient values calculated for the east well and Monitor Well 14 were 0.001 and 0.0004, respectively. The other parameter obtained from this analysis is a value for the vertical permeability through the confining medium separating the upper and lower aquifer. The vertical permeability values (P') for the east city well and Monitor Well 14 were calculated to be 0.62 gpd/ft^2 and 0.03 gpd/ft^2, respectively.

5.3.5 Distance-Drawdown Method

The distance-drawdown method yielded a transmissivity value of 258,500 gpd/ft and an storage coefficient value of 0.001. Values of distance versus drawdown obtained from the deep wells monitored during pumping, fall approximately on a straight line on a semi-log graph. Drawdown values were used at 1,000 minutes after the start of pumping. The radius of influence of the west well in the lower aquifer can be interpreted from the distance-drawdown graph. The radius of influence, after 1,000 minutes, after the start of the aquifer test is approximately 7,100 feet from the pumping well. Distance-drawdown data are shown on Table 4 and graphically illustrated in Appendix E.

5.3.6 Conclusions

Statistical analyses of the transmissivity data resulted in a mean value of 242,500 gpd/ft. This value was obtained by taking the average of values obtained that are in the range of plus or minus one standard deviation of all the calculated values. See Table 2, Aquifer Performance Results.

Storage coefficient values ranged from 1×10^{-3} to 4×10^{-4}. Vertical permeability values of the confining clay unit, obtained by the Walton Leaky Aquifer analysis, range from 0.62 gpd/ft^2 to 0.03 gpd/ft^2. Data from well pairs indicate that a unit hydraulic gradient probably exists across the aquitard over most of the site. Aquifer analyses of vertical permeability are believed to be more representative values for the site as a whole than those values obtained from laboratory testing.

The analyses of data collected during field activities have yielded four important parameters regarding the lower aquifer and confining aquitard. These values, tabulated below are judged to be reasonable values for the aquifer in response to the pumping test and may be used in subsequent analyses.

Transmissivity (gpd/ft)	Storage Coefficient (dimensionless)	Vertical Permeability of the Aquitard (gpd/ft^2)	Horizontal Permeability of the Lower Aquifer* (gpd/ft^2)
242,500	0.001 to 0.0001	0.03 to 0.62	1,212.5

* Saturated thickness = 200 feet.

TABLE 1
OBSERVATION WELL DATA

Well I.D.	Total* Well Depth (feet)	Screen* Length (feet)	Well Bottom* Elevation (feet, msl)	Aquifer
1	107.00	15	234.11	Lower
1A	48.08	5	294.23	Upper
1B	103.00	10	240.05	Lower
3	53.83	5	286.22	Upper**
4	83.17	10	256.78	Lower
5	37.08	5	306.52	Upper
6	81.67	10	261.59	Lower
9	55.67	5	286.83	Upper
10	90.27	5	253.39	Lower
11	50.58	5	292.88	Upper
12	105.15	15	239.29	Lower
13	33.66	15	309.16	Upper
14	110.55	15	323.36	Lower
15	49.50	5	288.55	Upper**
19	55.98	5	303.71	Upper**
21	44.98	5	308.37	Upper
23	34.77	5	305.82	Upper

* Information from ENSAFE.
** Hydraulically connected to lower aquifer.

TABLE 2

AQUIFER PERFORMANCE RESULTS

Method and Well I.D.	Transmissivity (gpd/ft)	Storage (dimensionless)	P' (gpd/ft^2)
Time - Drawdown			
West well	105,153	NA	-
	400,258	NA	-
East well	190,892	0.81*	-
	285,429	0.43*	-
MW-14	302,634	0.69*	-
Time - Recovery			
West well	172,333	NA	-
East well	364,941	0.087	-
	221,571	0.86*	-
MW-14	376,000	0.043	-
Theis Method			
West well	-	NA	-
East well	207,162	2.3*	-
MW-14	215,448	0.95*	-
Walton Leaky Artesian			
West well	-	NA	-
East well	250,521	0.001	0.62
MW-14	250,521	0.0004	0.03
Distance - Drawdown			
@ t = 1,000 minutes	258,500	0.001	-

* Unreasonable value, disregard.
Average transmissivity value = 257,240 gpd/ft
Sample standard deviation = 82,915 gpd/ft
Average of values in range of ± 1 Std.Dev. = 242,500 gpd/ft
P' = Vertical ground water permeability through the leaky confining layer.
NA = Storage coefficient cannot be determined in pumping well.

TABLE 3

WEST WELL DISCHARGE DATA

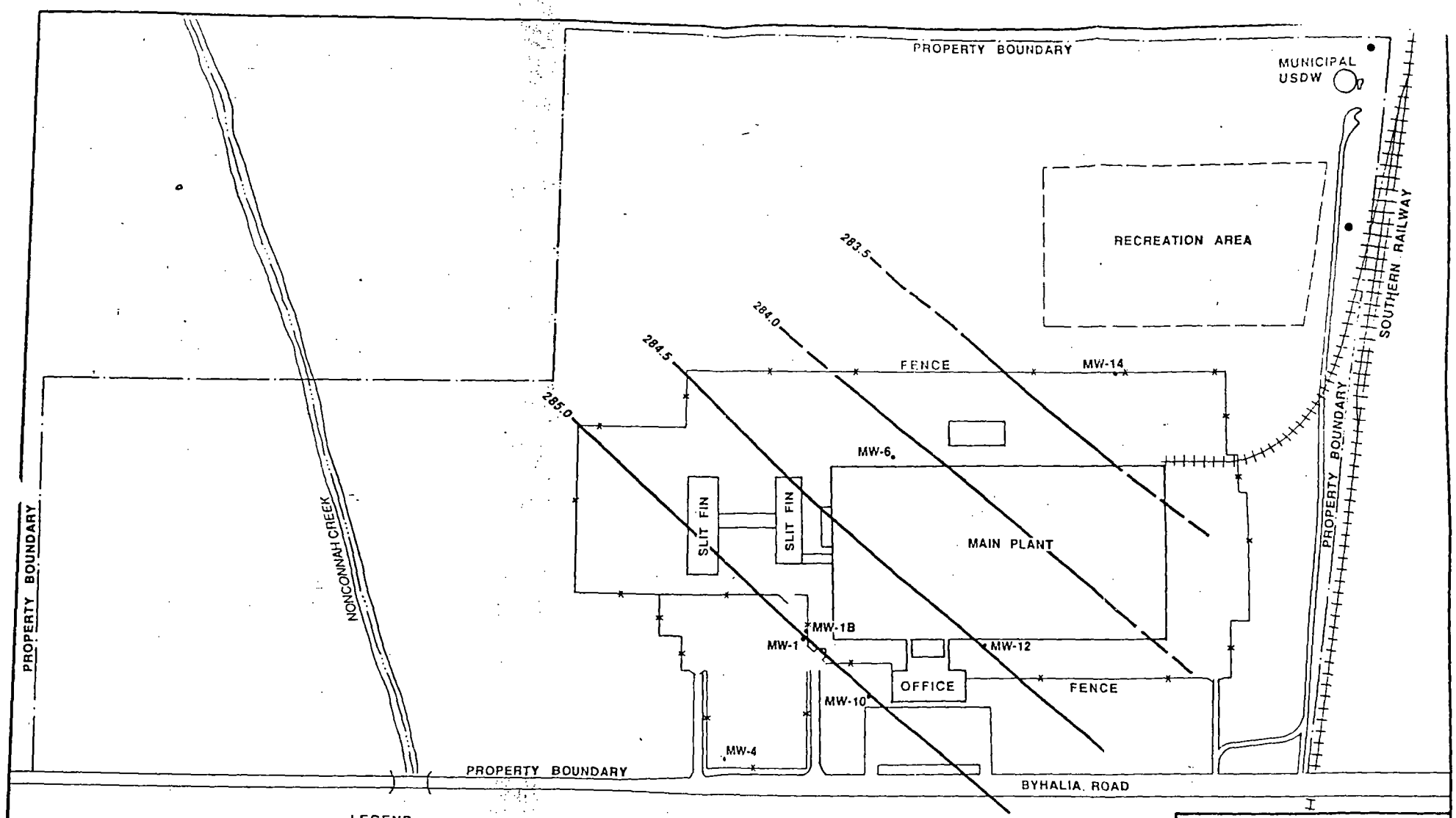
Date	Elapsed Time (min)	Flow Meter Reading (gal)
4/18/88	0	-
	60	28,500
	120	56,500
	180	84,750
	240	112,800
4/19/88	900	422,500
	970	456,000
	1,020	479,500
	1,380	647,000
	1,440	675,000
	1,680	787,700
4/20/88	2,400	1,125,000
	2,460	1,154,500
	2,640	1,237,000
	2,940	1,378,500
	3,120	1,462,000
4/21/88	3,780	1,772,000
	3,870	1,813,400

$$\text{Average Discharge} = \frac{1813400}{3870} = 468.5 \text{ gpm}$$

TABLE 4

DISTANCE DRAWDOWN DATA

Well I.D.	Distance (feet)	Drawdown at 1,000 Minutes (feet)
1	2,220	0.30
1B	2,220	0.46
4	2,640	0.36
6	1,735	0.56
10	2,240	0.47
12	1,940	0.55
14	1,154	0.79
East well	496	0.99



0 250 500
SCALE IN FEET

LEGEND:

—285.0— Piezometric Contour

• Monitor Well in Deep Sand

● City Water Production Well

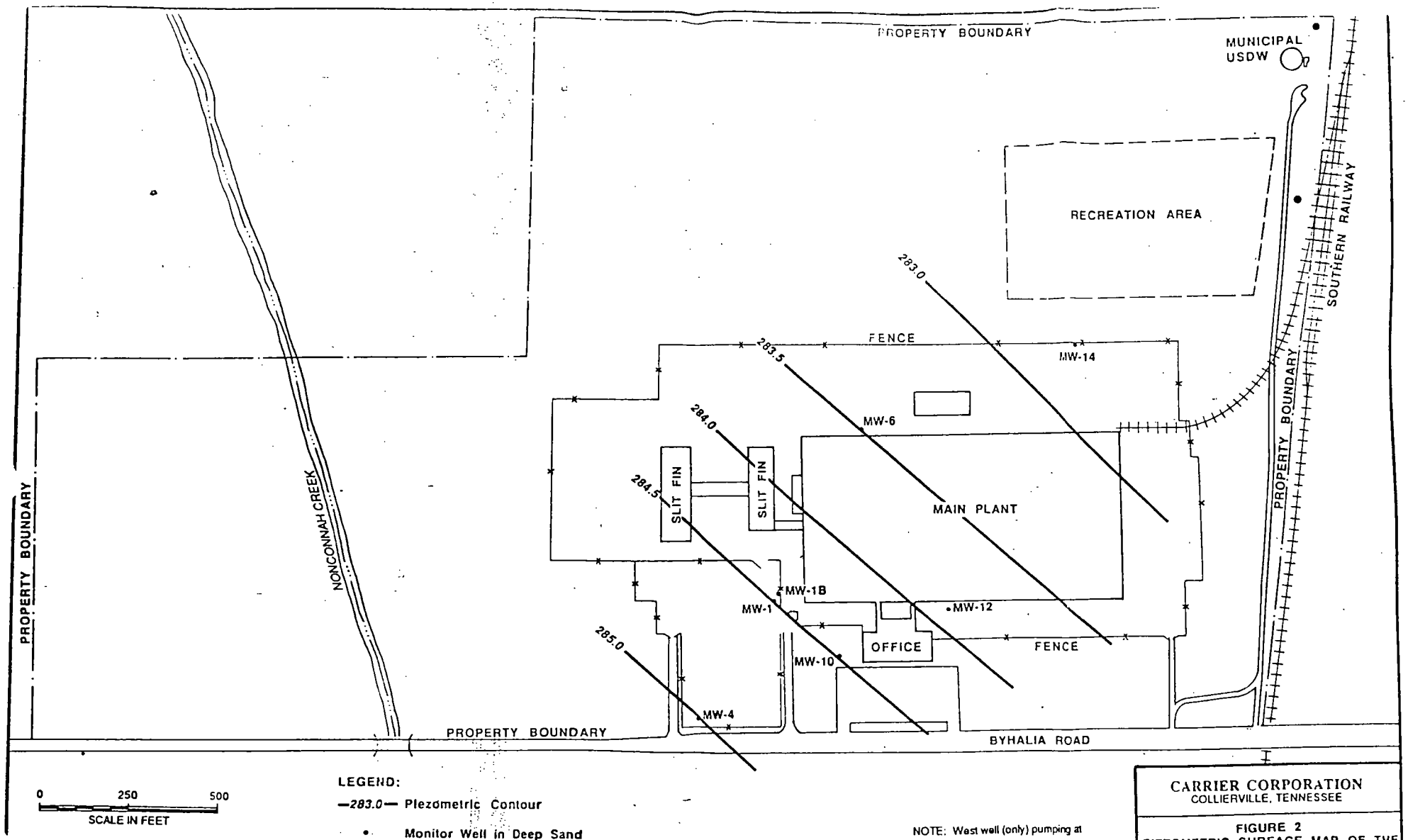
BASE MAP SOURCE: Aerial photography, November 7, 1971.

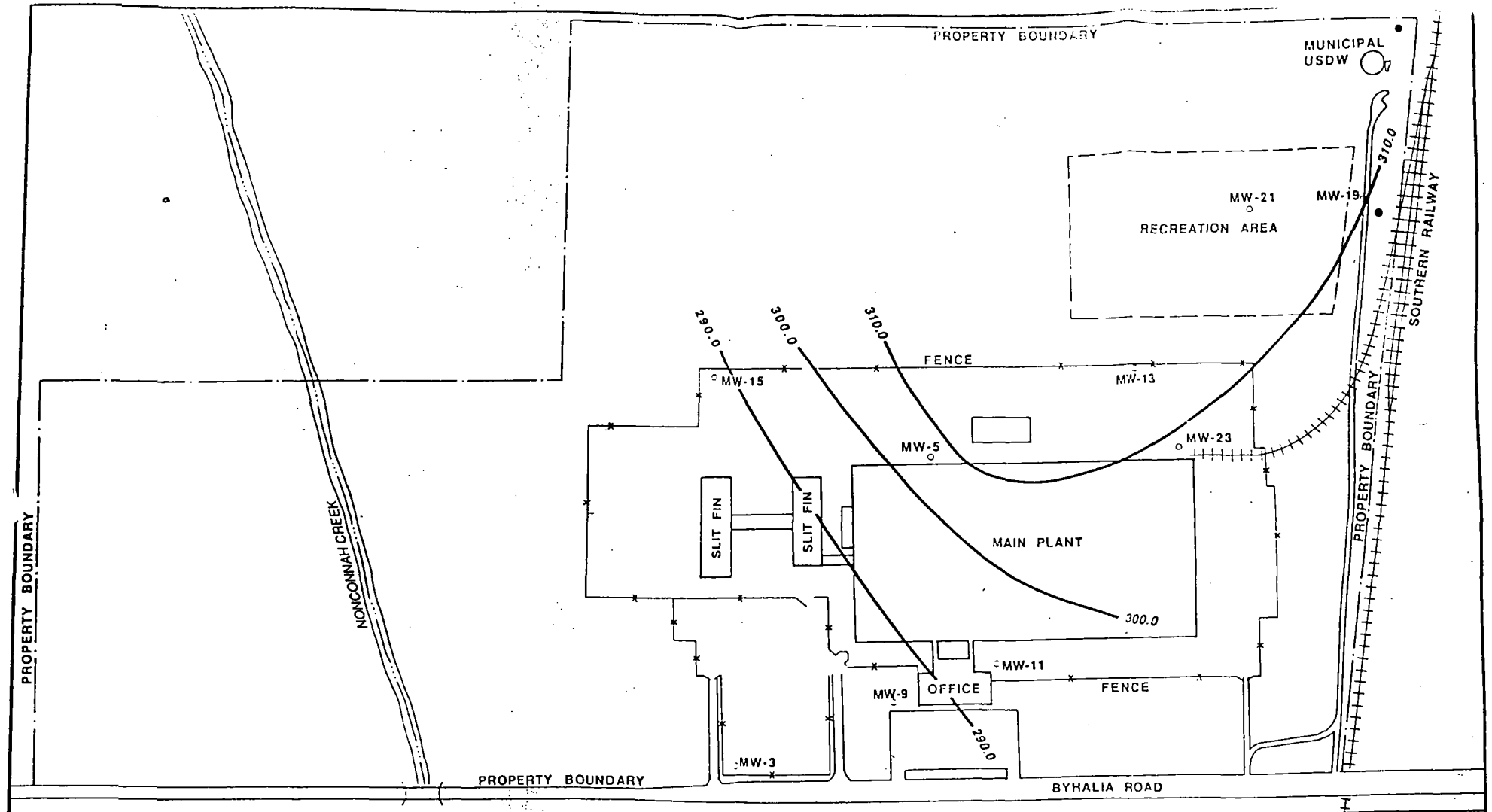
Dames & Moore

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

FIGURE 1
PIEZOMETRIC SURFACE MAP OF THE LOWER AQUIFER FOUR HOURS BEFORE START OF PUMPING

JOB NO. 14750-004-17 JUNE 1988


PROPERTY BOUNDARY
MUNICIPAL USDW
RECREATION AREA
SOUTHERN RAILWAY
PROPERTY BOUNDARY
FENCE
MW-14
MW-6
MAIN PLANT
SLIT FIN
SLIT FIN
MW-1B
MW-1
MW-12
OFFICE
FENCE
MW-10
MW-4
PROPERTY BOUNDARY
BYHALIA ROAD
NONCONNAH CREEK
PROPERTY BOUNDARY
283.0
283.5
284.0
284.5
285.0
0 250 500
SCALE IN FEET
LEGEND:
—283.0— Piezometric Contour
Monitor Well in Deep Sand
City Water Production Well
NOTE: West well (only) pumping at 470 gpm.
BASE MAP SOURCE: Aerial photography, November 7, 1971.
Dames & Moore
CARRIER CORPORATION
COLLIERVILLE, TENNESSEE
FIGURE 2
PIEZOMETRIC SURFACE MAP OF THE LOWER AQUIFER 1550 MINUTES AFTER START OF PUMPING
JOB NO. 14750-004-17
JUNE 1988



0 250 500
SCALE IN FEET

LEGEND:

○ Monitor Well in Shallow Sand Zone

—290.0— Piezometric Contour

● City Water Production Well

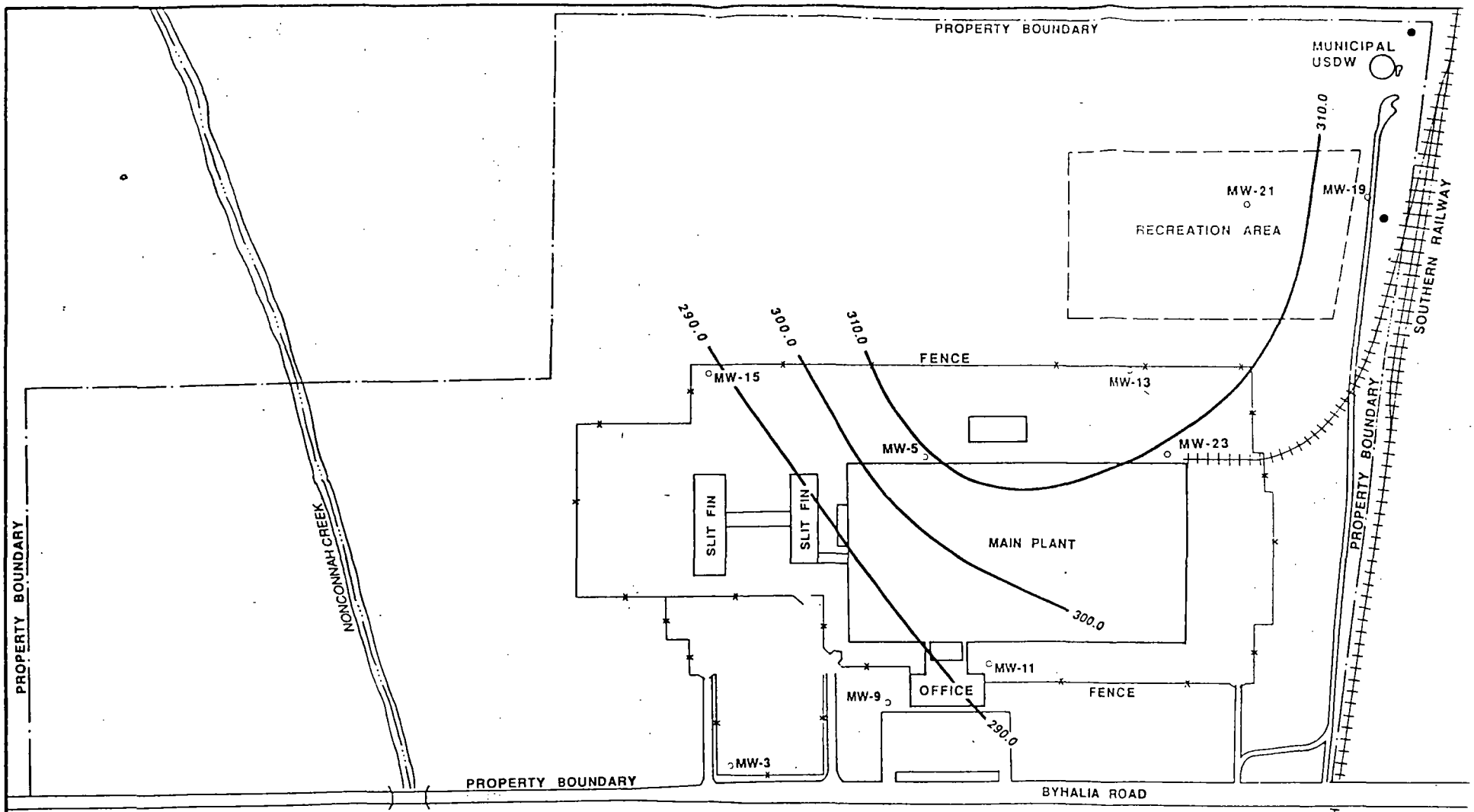
BASE MAP SOURCE: Aerial photography, November 7, 1971.

CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

FIGURE 3
PIEZOMETRIC SURFACE MAP OF THE UPPER AQUIFER FOUR HOURS BEFORE START OF PUMPING

JOB NO. 14750-004-17 JUNE 1988

Dames & Moore



0 250 500
SCALE IN FEET

LEGEND:

- ○ Monitor Well in Shallow Sand Zone
- —290.0— Piezometric Contour
- ● City Water Production Well

BASE MAP SOURCE: Aerial photography, November 7, 1971.

Dames & Moore

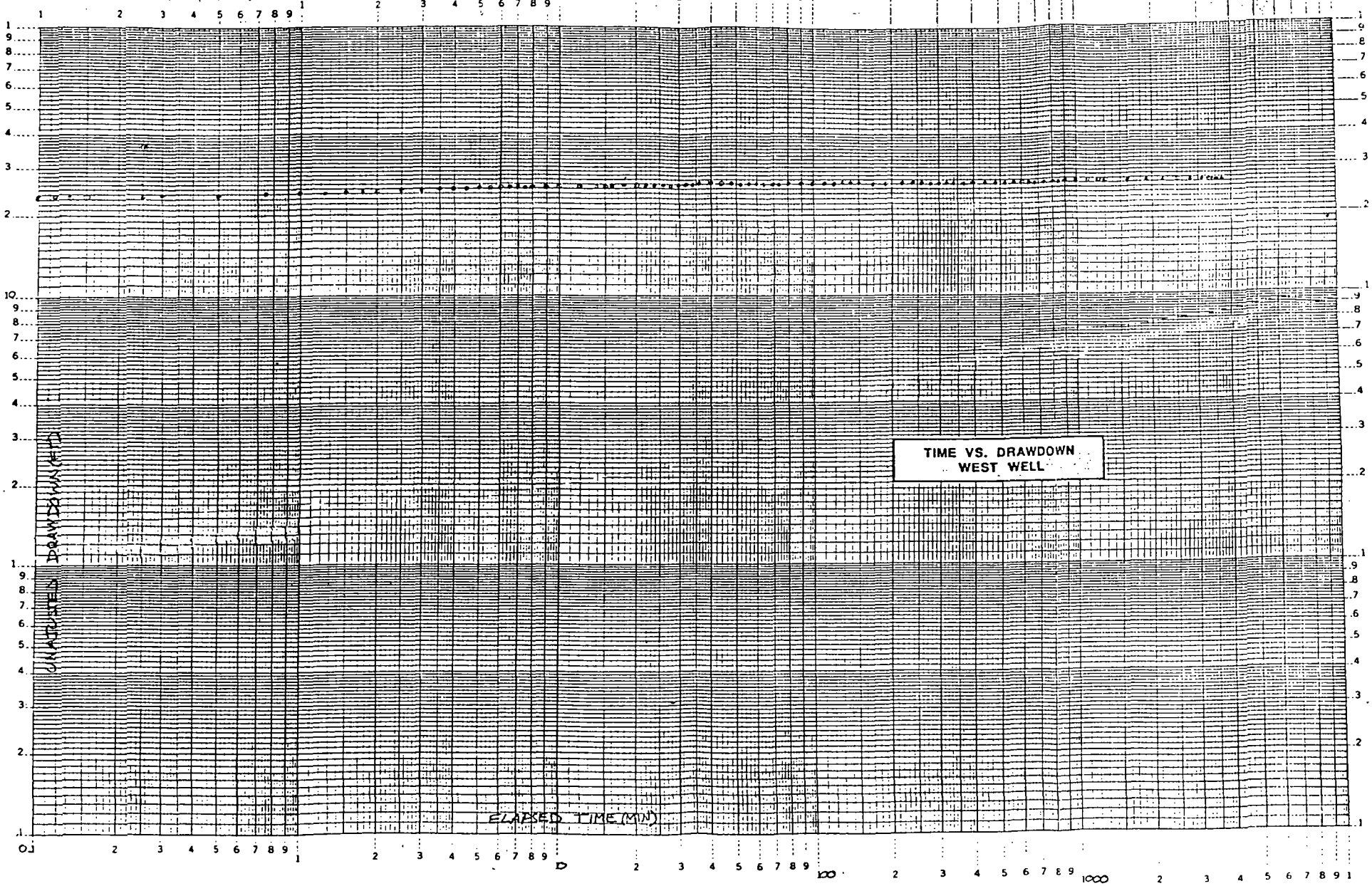
CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

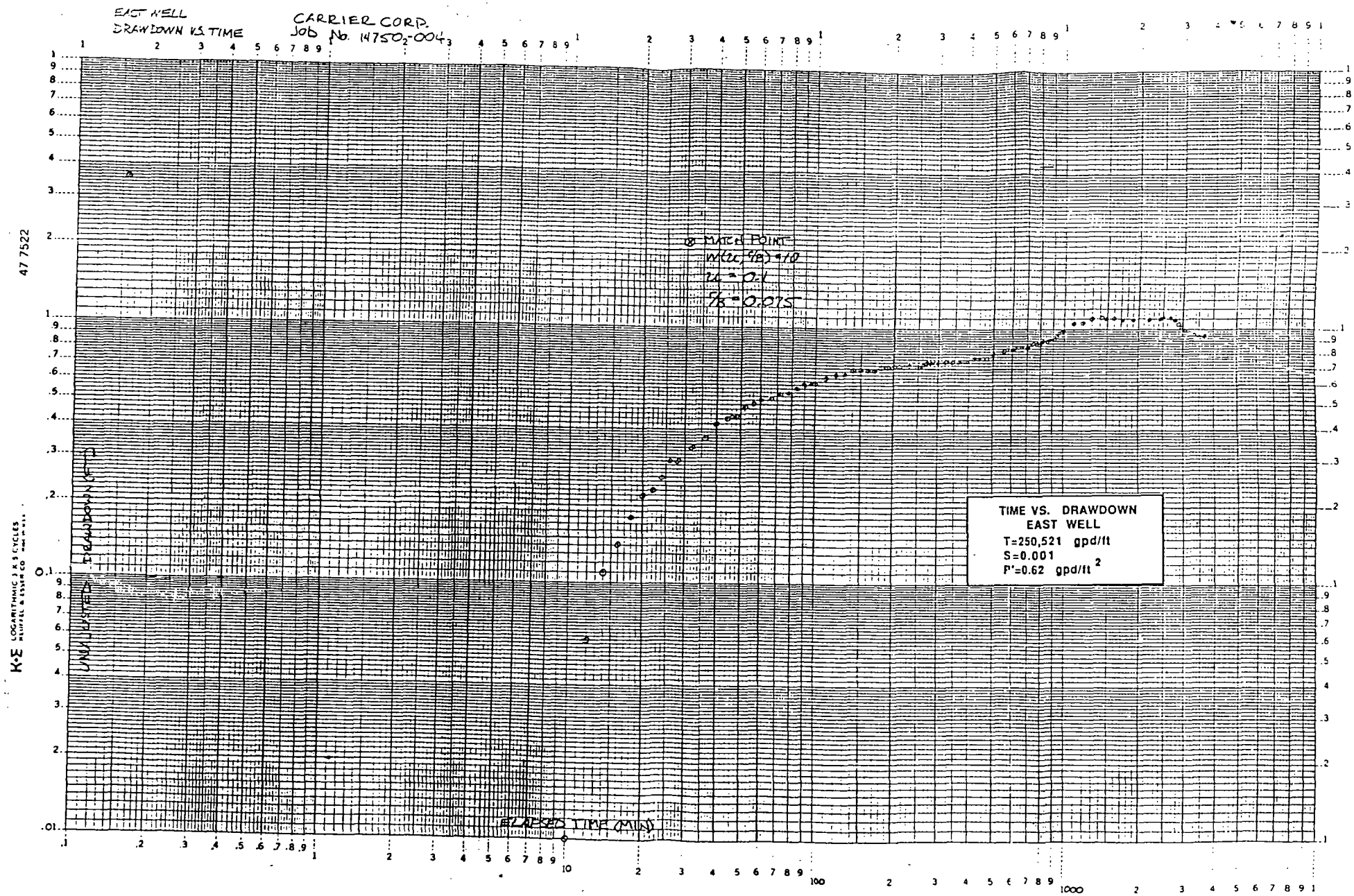
FIGURE 4
PIEZOMETRIC SURFACE MAP OF TH. UPPER AQUIFER 1550 MINUTES AFTER START OF PUMPING

JOB NO. 14750-004-17 JUNE 1988

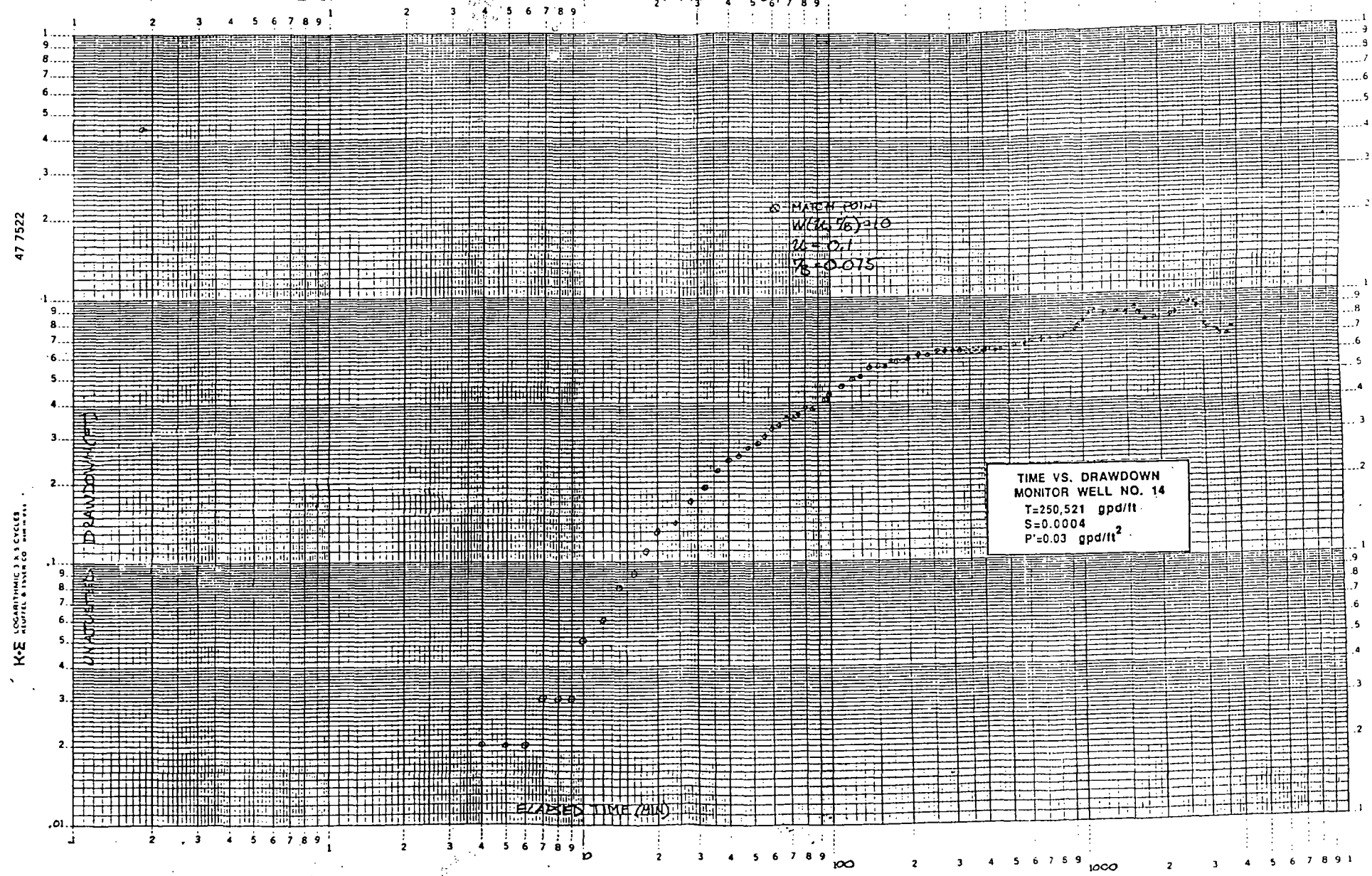
WEST WELL
DRAWDOWN VS TIME

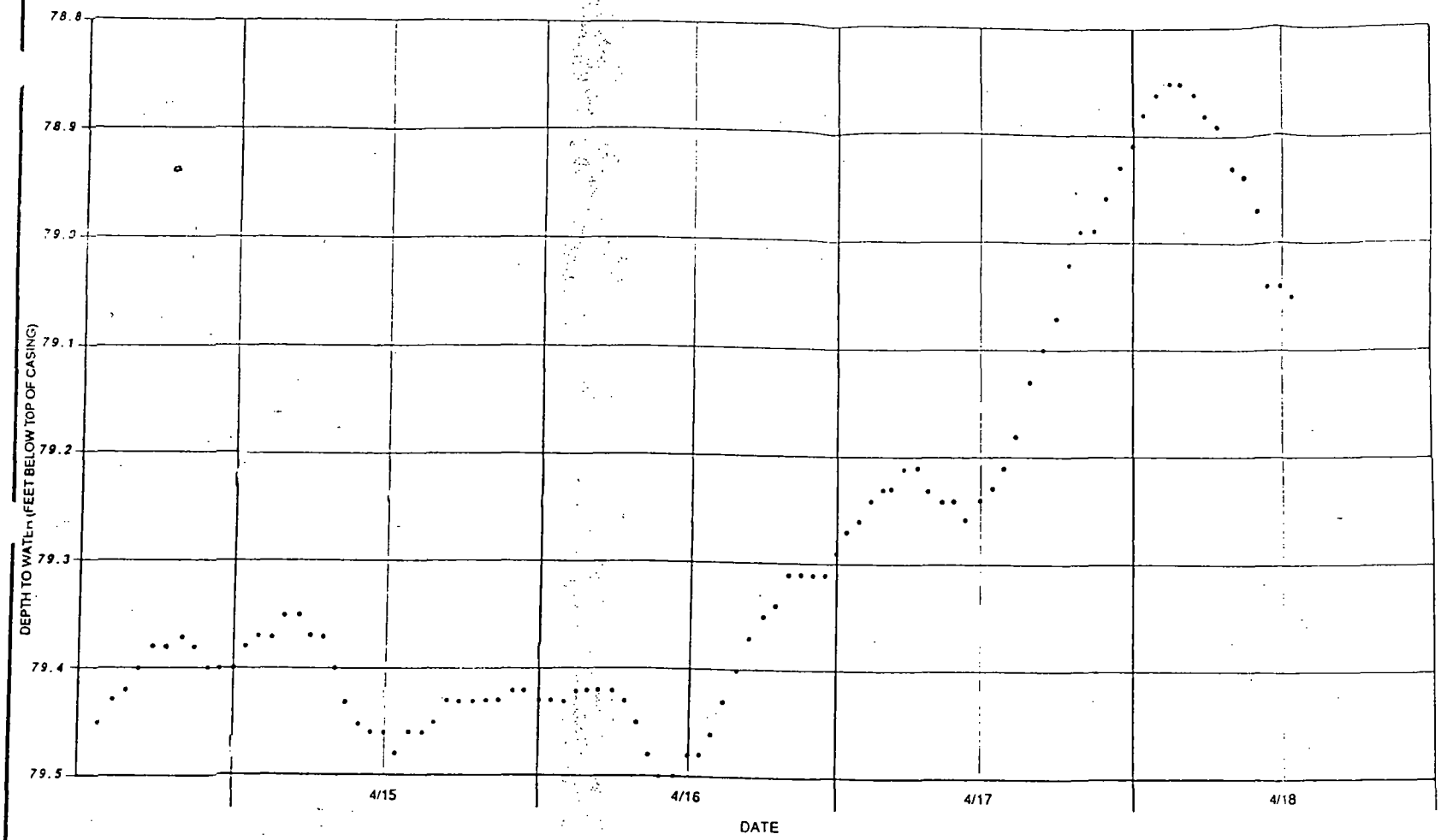
CARRER CORP
JOB No 14750-004




EAST WELL
DRAWDOWN VS TIME
CARRIER CORP.
JOB No. 14750-004
MATCH POINT
W(u, r/B) = 1.0
u = 0.1
r/B = 0.075
TIME VS. DRAWDOWN
EAST WELL
T=250,521 gpd/ft
S=0.001
P'=0.62 gpd/ft 2
DRAWDOWN (FT)
ELAPSED TIME (MIN)
47 7522
K+E LOGARITHMIC 3 X 5 CYCLES

OBSERVATION WELL No. 14 CARRIER CORP.
DRAWDOWN VS. TIME Job No. 14750-004

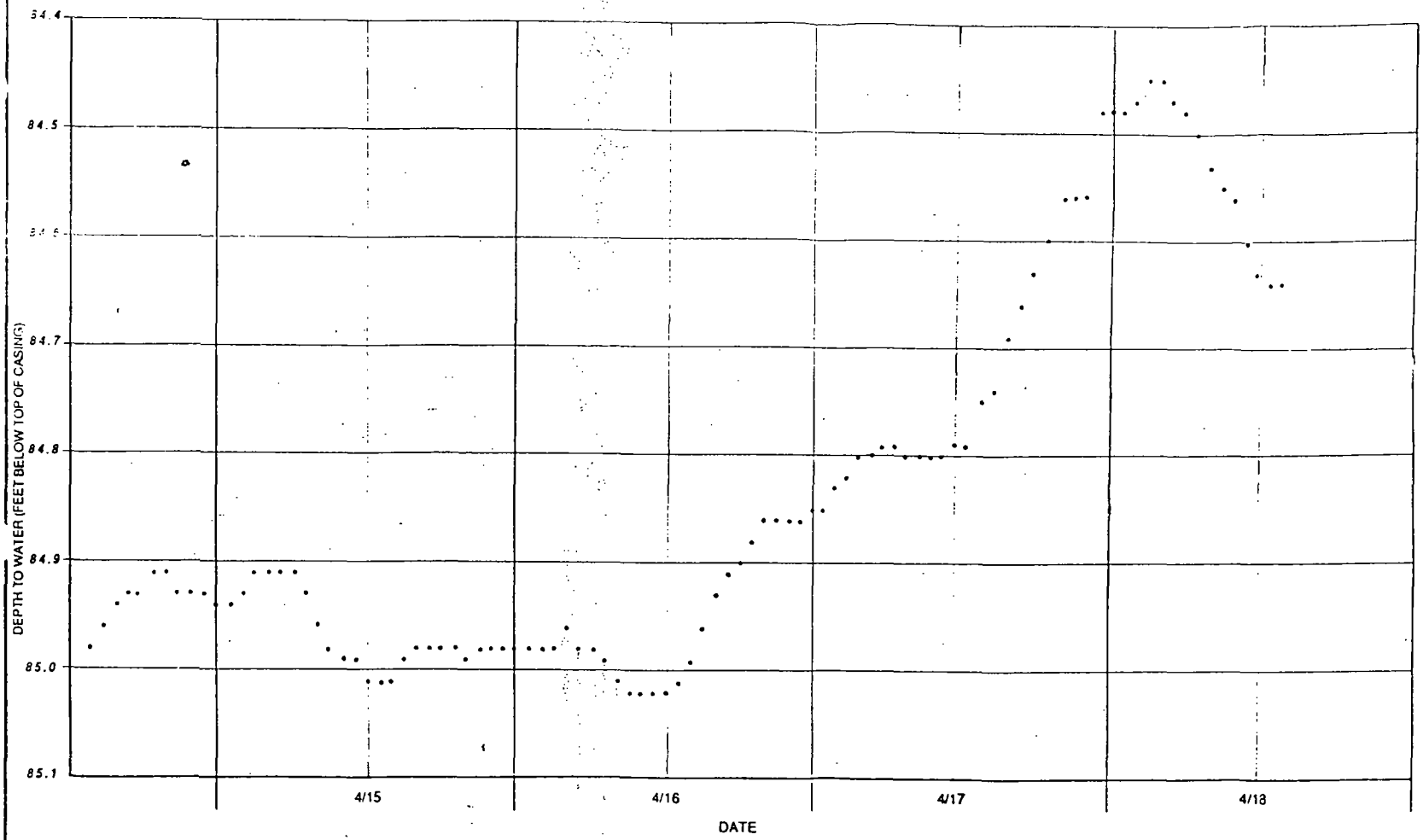




CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

FIGURE
HYDROGRAPH OF
ANTECEDENT WATER LEVEL TRENDS
WEST WELL

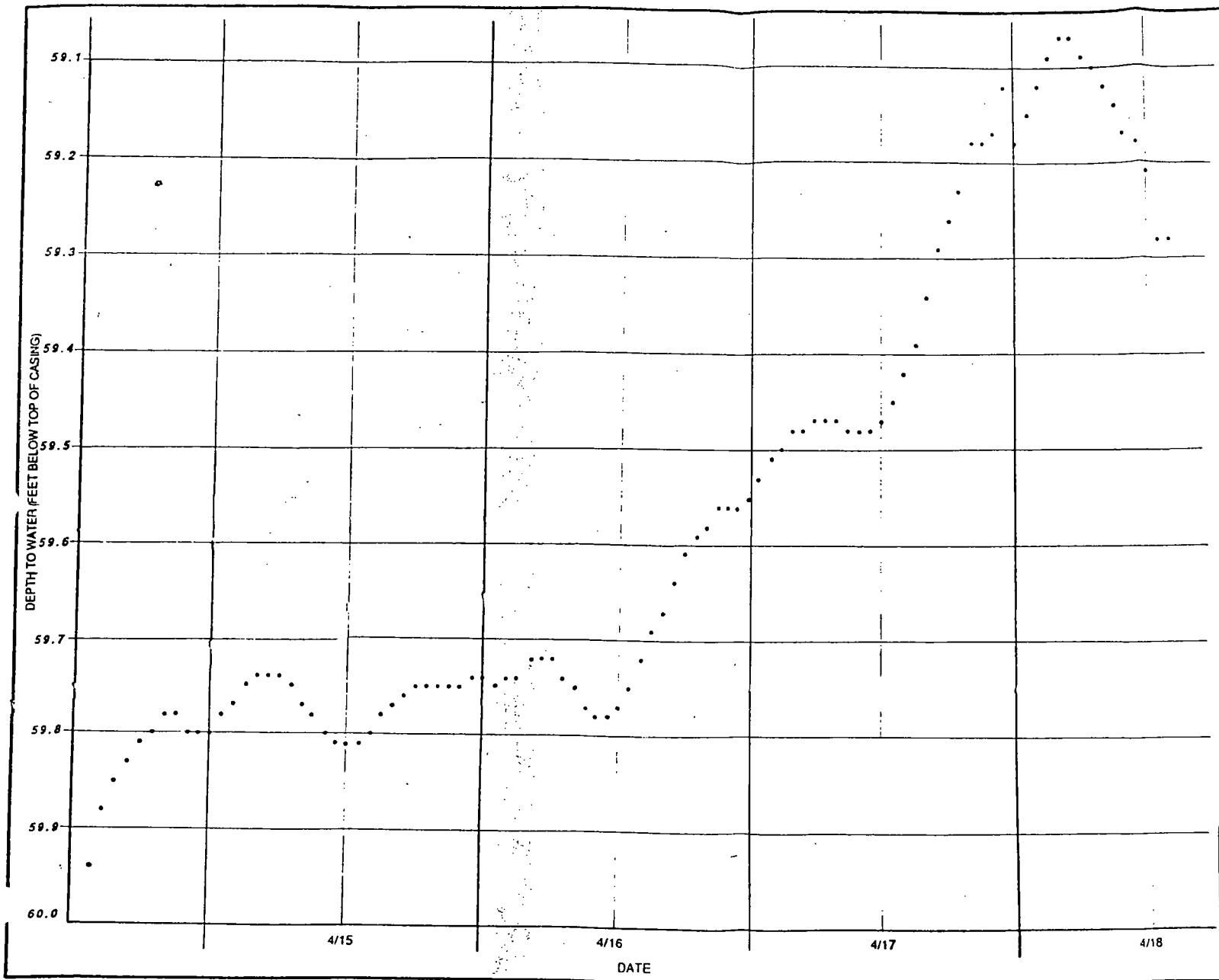
JOB NO. 14750-004-17 Dames & Moore



CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

FIGURE
HYDROGRAPH OF
ANTECEDENT WATER LEVEL TRENDS
EAST WELL

JOB NO. 14750 004-17 Dames & Moore



CARRIER CORPORATION
COLLIERVILLE, TENNESSEE

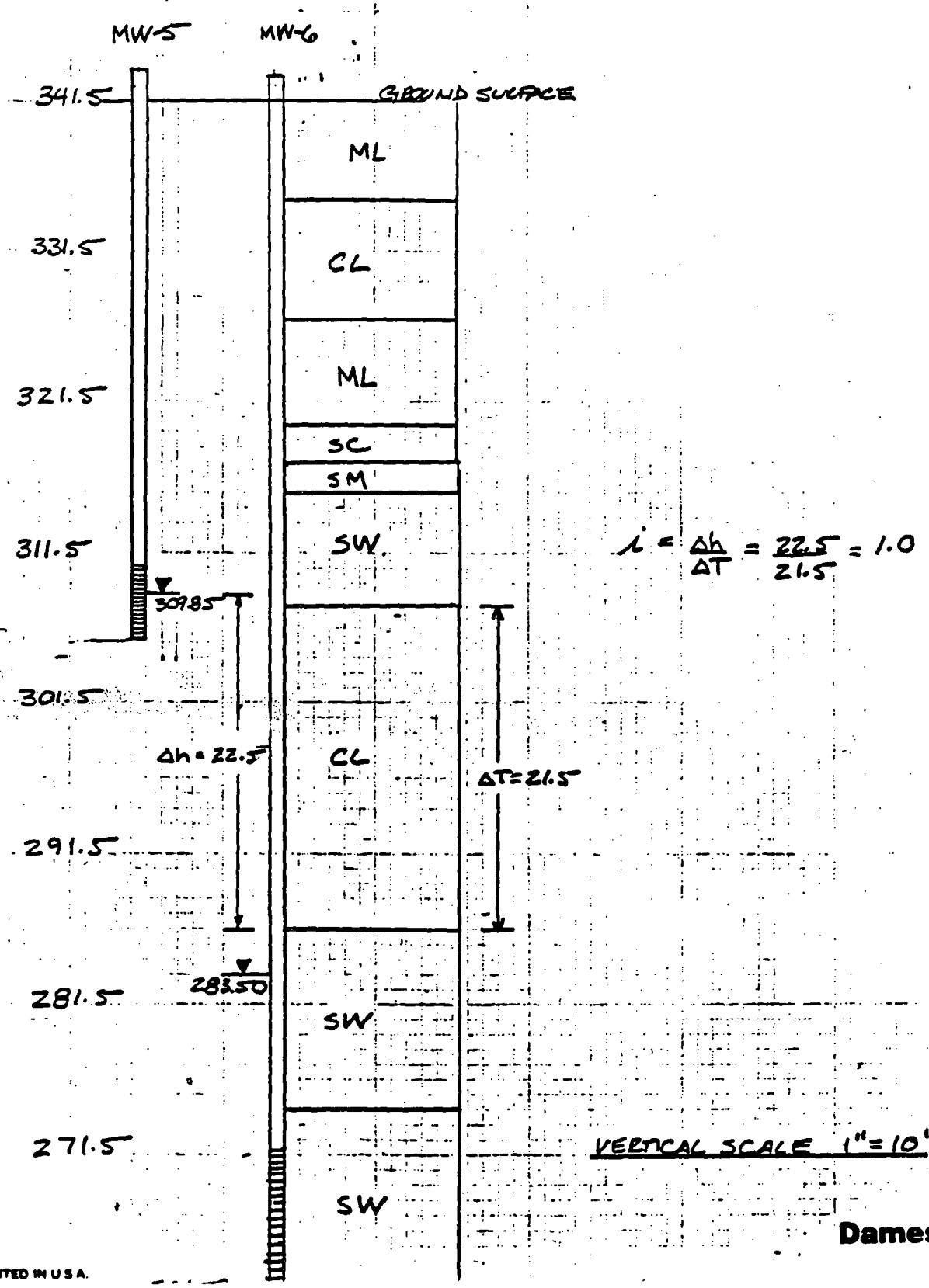
FIGURE
HYDROGRAPH OF
ANTECEDENT WATER LEVEL TRENDS
MONITORING WELL 14

JOB NO. 14750-004-17 Dames & Moore

FILE 14750-004-5061
SUBJECT CARRIER CORPORATION
PUMP TEST APRIL, 1988 SHEET 2 OF

VERTICAL GRADIENT OF MONITOR WELL SET MW-5 & 6 @ 1550 MINUTES AFTER START OF PUMPING.

FIGURE 6



REVISIONS
BY ____ DATE ____ TO EO ____
BY ____ DATE ____ TO EO ____

BY S.G. Smith DATE 5-23-88
CHECKED BY ____
COPY TO EO ____

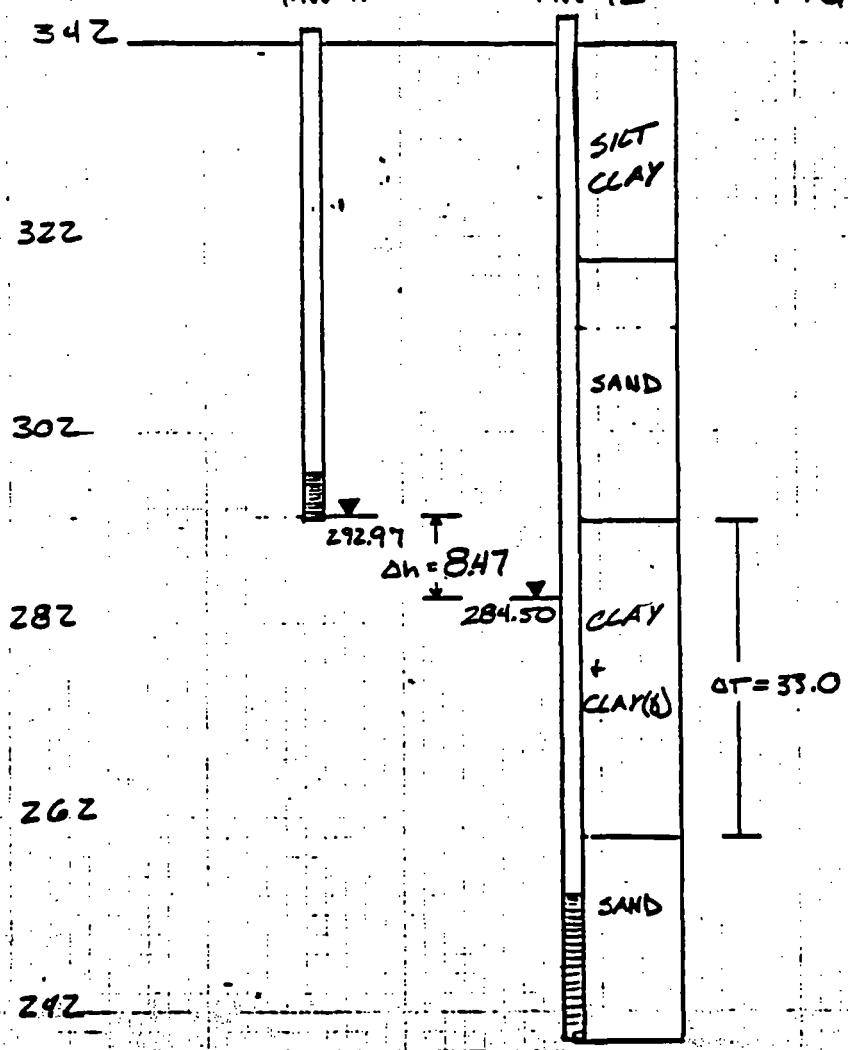
Dames & Moore

945 1 (3-72) PRINTED IN U.S.A.

FILE 14750-004-5061
SUBJECT CARRIER CORPORATION
PUMP TEST APRIL, 88 SHEET 3 OF

VERTICAL GRADIENT OF MONITOR WELL SET MW-11,12
4 HOURS PRIOR TO START OF PUMPING

FIGURE 7



$i = \frac{\Delta h}{\Delta T} = \frac{8.5}{33.0} = 0.26$

VERTICAL SCALE 1" = 20'

REVISIONS
BY ____ DATE ____ TO EO ____
BY ____ DATE ____ TO EO ____

BY S.G. Smith DATE 5-23-88
CHECKED BY ____
COPY TO EO ____

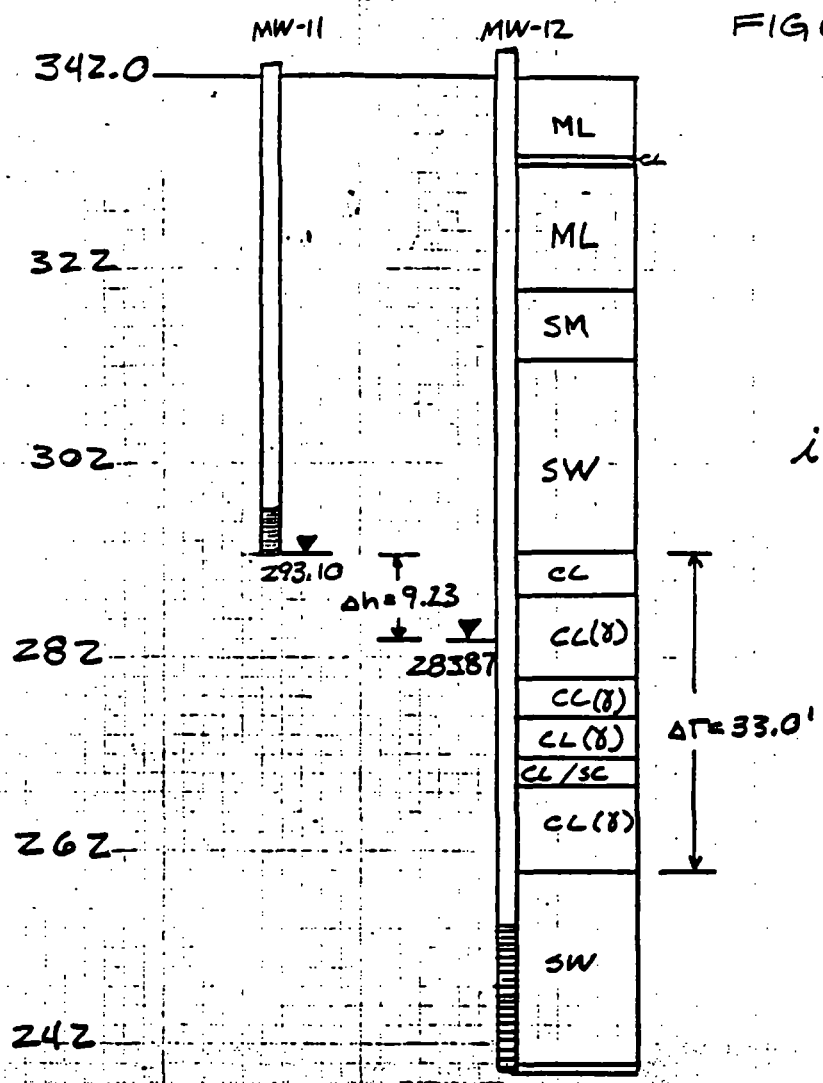
Dames & Moore

945 1 (3-72) PRINTED IN U.S.A.

FILE 14750-004-5061
SUBJECT CARRIER CORPORATION
PUMP TEST APRIL, 1988 SHEET 4 OF 1

VERTICAL GRADIENT OF MONITOR WELL SET MW-11,12
@ 1550 MINUTES AFTER START OF PUMPING

FIGURE 8



$$i = \frac{\Delta h}{\Delta T} = \frac{9.2}{33.0} = 0.28$$

VERTICAL SCALE 1" = 20'

REVISIONS
BY ____ DATE ____ TO EO ____
BY ____ DATE ____ TO EO ____

BY S.G. SMITH DATE 5-23-88
CHECKED BY ____
COPY TO EO ____

Dames & Moore

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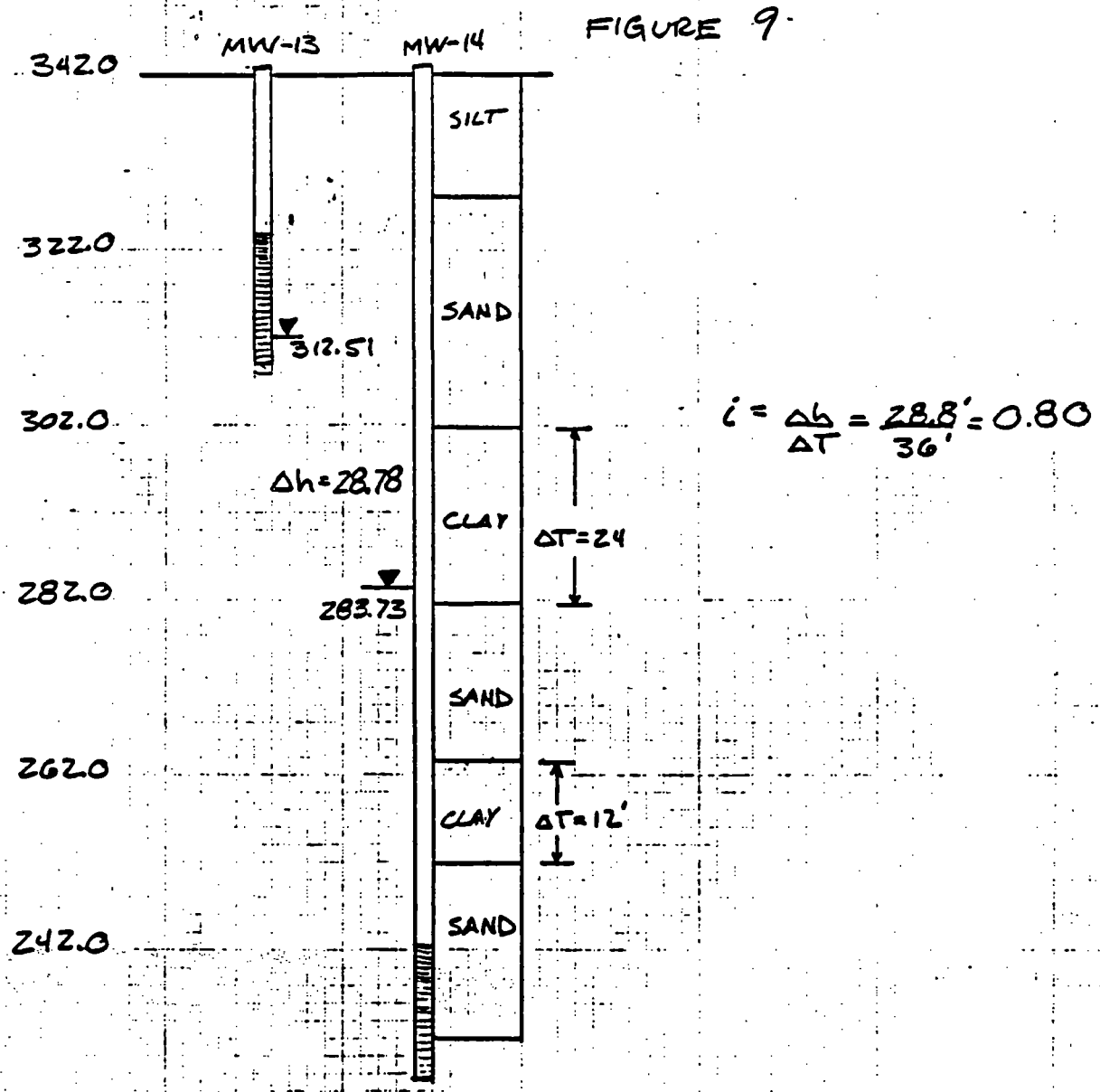
FILE 14750-004-5061
SUBJECT CARRIER CORPORATION
PUMP TEST APRIL 1988 SHEET 5 OF 5

VERTICAL GRADIENT OF MONITOR WELL SET MW-13, 14
4 HOURS PRIOR TO START OF PUMPING

FIGURE 9



VERTICAL SCALE 1"=20'

REVISIONS
BY ____ DATE ____ TO EO ____
BY ____ DATE ____ TO EO ____

BY S.G. Smith DATE 5-23-88
CHECKED BY ____
COPY TO EO ____

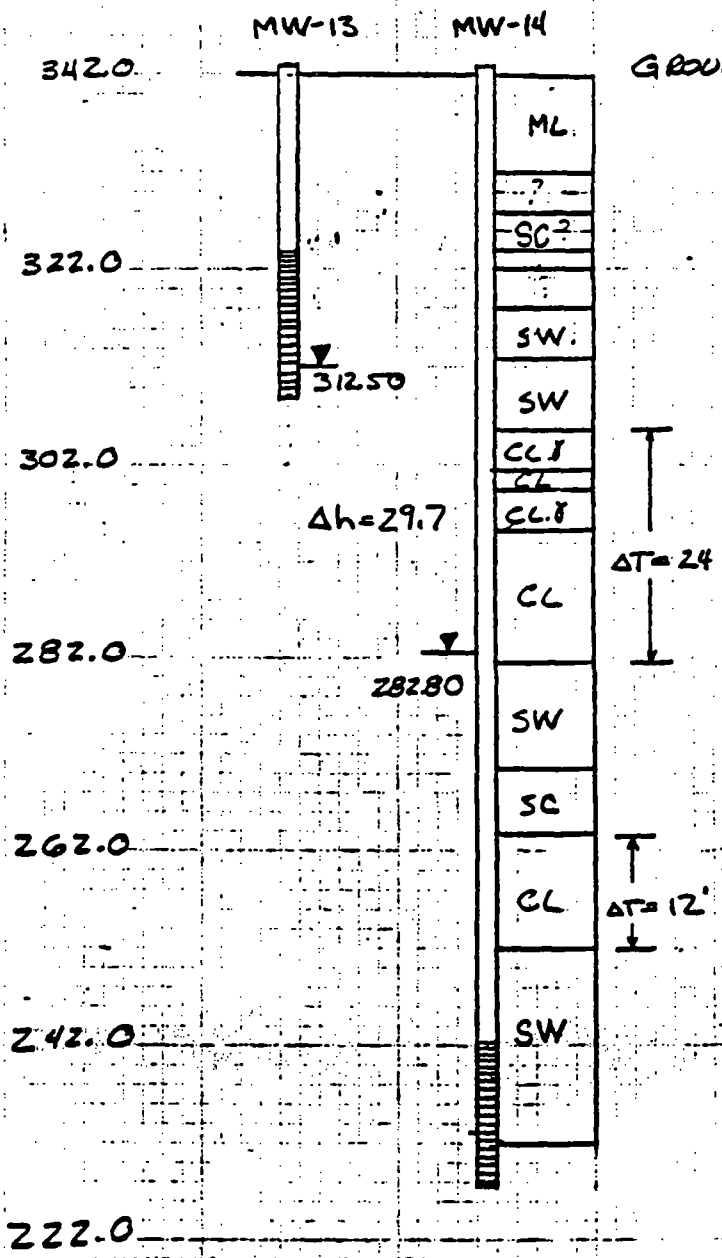
Dames & Moore

945 1 (3-72) PRINTED IN U.S.A.

FILE 14750-004 5061
SUBJECT CARRIER CORPORATION
PUMP TEST APRIL 88 SHEET 6 OF

VERTICAL GRADIENT OF MONITOR WELL SET - MW-13, 14
@ 1550 MINUTES AFTER START OF PUMPING

FIGURE 10



$$i = \frac{\Delta h}{\Delta T} = \frac{29.7}{36.0} = 0.83$$

VERTICAL SCALE 1" = 20'

REVISIONS
BY ____ DATE ____ TO EO ____
BY ____ DATE ____ TO EO ____

BY SG. Smith DATE 5-23-88
CHECKED BY ____
COPY TO EO ____

Dames & Moore

APPENDIX A

TRANSDUCER DATA FOR THE WEST AND EAST CITY WELL AND OBSERVATION WELL NO. 14

APPENDIX B

LAYNE-CENTRAL BORING LOGS OF THE WEST AND EAST WELLS OF THE COLLIERVILLE, TENNESSEE MUNICIPAL WELLFIELD

FORMATION LOG OF THE WELL OR TEST HOLE

WEST WELL

STARTED TEST HOLE 7-13- 19__ FINISHED 8-4- 1967 TEST HOLE NUMBER 1

LOCATION Town of Collierville, Tenn. SEC. ____ TS ____ RANGE ____ ELEVATION ____

TOTAL DEPTH	THICKNESS EACH STRATUM	FORMATION
	30	Clay
50	20	sand and gravel
110	60	clay
113	3	hard streak
136	23	fine sand clay
156	20	yellow sand
178	22	sand
191	13	sand
197	6	clay
202	5	sand
225	23	pk. sand
235	10	clay
247	12	pk. sand
270	23	pk. sand
283	13	pk. sand
86	3	soft st.
03	17	fine sand

N. W. Corner
[illegible]

Total depth 287'

[illegible]

Screen 241'-281'

TOTAL DEPTH	THICKNESS EACH STRATUM	FORMATION

MUD PIT SIZE ____ FT. X ____ FT. ____ X ____ FT. DEEP

TYPE BIT USED TO CUT SAND ____

SIZE OF TEST HOLE THROUGH SAND ____

TYPE OF BIT USED TO CUT UPPER FORMATIONS ____

____ SIZE ____

TYPE MUD PUMP USED ____

DRILLING PRESSURE IN SAND ____

TYPE OF MUD USED ____

NOTES: ____

TEST DATA

	PRELIMINARY TEST	FINAL TEST
STATIC WATER LEVEL		
PUMPED G. P. M.		
PRESSURE, POUNDS		
DRAWDOWN		
G. P. F. D.		
GUARANTEED G. P. M.		
GUARANTEED PRESSURE		
DATE OF TEST		

REMARKS

DRILLER R. E. Heriot

FORMATION LOG OF THE WELL OR TEST HOLE

EAST WELL

STARTED TEST HOLE 8-7- 19 67 FINISHED 8-24- 19 67 TEST HOLE NUMBER 2

LOCATION Town of Collierville, Tenn. SEC ____ TS ____ RANGE ____ ELEVATION ____

TOTAL DEPTH	THICKNESS EACH STRATUM	FORMATION
	30	Clay
55	25	sand-gravel
115	60	clay
140	25	sand-clay
155	15	yellow sand
177	22	sand
199	22	sand
223	24	sand
246	23	sand
269	23	sand-clay
292	23	sand
318	26	sand
338	20	sand-clay
		[illegible]
		[illegible]
		Total depth 304
		Screen 278'-[illegible]'

TOTAL DEPTH	THICKNESS EACH STRATUM	FORMATION

MUD PIT SIZE ____ FT. X ____ FT. X ____ FT. D

TYPE BIT USED TO CUT SAND ____

SIZE OF TEST HOLE THROUGH SAND ____

TYPE OF BIT USED TO CUT UPPER FORMATIONS ____

____ SIZE ____

TYPE MUD PUMP USED ____

DRILLING PRESSURE IN SAND ____

TYPE OF MUD USED ____

NOTES: ____

TEST DATA

	PRELIMINARY TEST	FINAL TEST
STATIC WATER LEVEL		
PUMPED G. P. M.		
PRESSURE, POUNDS		
DRAWDOWN		
G. P. F. D.		
GUARANTEED G. P. M.		
GUARANTEED PRESSURE		
DATE OF TEST		

REMARKS

APPENDIX C

WATER LEVEL DATA USED TO GENERATE PIEZOMETRIC SURFACE MAPS OF THE UPPER AND LOWER AQUIFER PRIOR TO AND DURING PUMPING

Measurement Of Groundwater Levels

- DEEP SANDS -

Job Number: 14756-004-5061 4 HOURS PRIOR TO START OF PUMPING TEST Date: 4-18-88

Owner: CARRIER CORP. Data By: Reduction by Ron Petrin

Location: COLLIERVILLE, TENN. Method of Measurement: ELECTRIC WATER LEVEL INDICATOR

Boring Number	Time	Reference Point	Elevation Of Reference	Depth To Water	Water Elevation	Notes WELL DEPTH
MW-1	11:00	Top of Casing	343.62	58.57	285.05	107
MW-1B	"	" " "	343.50	58.61	284.89	103
MW-4	"	" " "	339.95	55.06	284.89	81.17
MW-6	"	" " "	343.26	59.08	284.18	79.92
MW-10	"	" " "	343.66	58.65	285.01	88.25
MW-12	"	" " "	344.44	59.94	284.50	102.79
MW-14	"	" " "	342.91	59.18	283.73	108.02

Dames & Moore
Cincinnati, Ohio

Measurement Of Groundwater Levels

Job Number: 14750-004-5061 DEEP SAND AQUIFER PUMPING DATA @ 1550 MIN Date: 4-19-86

Owner: CARRIER CORP. By: Ron Petrin

Location: COLLIERVILLE, TENN. Method of Measurement: ELECTRIC WATER LEVEL INDICATOR

Boring Number	Time MIN.	Reference Point	Elevation Of Reference	Depth To Water	Water Elevation	Notes
MW-1	1555	Top of Casing	343.62	59.20'	284.42	
MW-1B	1550	" " "	343.50	59.06	284.44	
MW-4	1565	" " "	339.95	55.02	284.93	
MW-6	1535	" " "	343.26	59.76	283.50	
MW-10	1571	" " "	343.66	59.26	284.40	
MW-12	1526	" " "	344.44	60.57	283.87	
MW-14	1540	" " "	342.91	60.11	282.80	

Dames & Moore
Cincinnati, Ohio

Measurement Of Groundwater Levels
-SHALLOW SANDS-

Job Number: 14750-004-5061 4 HOURS PRIOR Date: 4-18-88

Owner: CARRIER CORP. TO START OF PUMPING TEST By: Data Reduction by Ron Petrin

Location: COLLIERVILLE, TENN. Method of Measurement: ELECTRIC WATER

Boring Number	Time	Reference Point	Elevation Of Reference	Depth To Water	Water Elevation	Notes TOTAL WELL DEPTH
MW-1A	11:00	Top of Casing	342.31	47.81	294.50	47.0'
MW-3	"	" " "	340.05	52.35	287.70	50.75'
MW-5	"	" " "	343.60	34.25	309.35	37.08'
MW-9	"	" " "	342.50	55.38	287.12	55.67'
MW-11	"	" " "	343.46	50.49	292.97	49.00'
MW-13	"	" " "	342.82	30.31	312.51	33.66'
MW-15	"	" " "	338.05	48.81	289.24	48.25'
MW-19	"	" " "	359.69	49.67	310.02	54.00'
MW-21	"	" " "	353.35	42.37	310.98	44.98'
MW-23	"	" " "	340.59	30.67	309.92	

Dames & Moore
Cincinnati, Ohio

Measurement Of Groundwater Levels

Job Number: 14750-004-5061 SHALLOW SAND-AQUIFER PUMPING DATA @ 1550 minutes Date: 4-18-88

Owner: CARRIER CORP. By: Ron Petrin

Location: COLLIERVILLE, TENN. Method of Measurement: Olympic/Fus-2

Boring Number	MIN Time ELAPSED (MIN.)	Reference Point	Elevation Of Reference	Depth To Water (FEET)	Water Elevation	Notes
MW 1A	1560	TOP OF CASING	342.31	47.76	294.55	
MW-3	1566	" " "	340.05	52.35	287.70	
MW-5	1540	" " "	343.60	33.75	309.85	
MW-9	1575	" " "	342.50	55.39	287.11	
MW-11	1528	" " "	343.46	50.36	293.10	
MW-13	1505	" " "	342.82	30.32	312.50	
MW-15	1545	" " "	338.05	48.72	289.33	
MW-19	1647	" " "	359.69	50.21	309.48	
MW-21	1650	" " "	353.35	42.56	310.79	
MW-23	1520	" " "	340.59	30.65	309.94	

Dames & Moore
Cincinnati, Ohio

APPENDIX F

NUMERICAL DATA OF OBSERVATION WELL WATER LEVELS DURING PUMPING

AQUIFER PUMPING TEST DATA

County : Shelby

Location: Carrier / Collierville

Observation well no. 1A

Pumped well no. _____

Average Q _____ gpm r = _____ ft. r^2 = _____

Date	Hour	t (min)	t' (min)	t/t'	Depth to water	s (unadjusted)	Adjustment Δs	s' (adjusted)	Q (gpm)	Remarks
4/18/88	11:00				47.81					SWL
"	3:00	0								Pump On
"	6:30	210			47.77'	-0.04				
4/19/88	2:15	1295			47.76'	-0.05				
"	5:00	1560			47.76'	-0.05				
4/20/88	08:48	2508			47.76'	-0.05				
"	12:42	2742			47.76'	-0.05				
"	5.44	3044			47.77'	-0.04				Pump off 7:30 a.m. 4/21
4/21/88	11:10	4090			47.75'	-0.06				

AQUIFER PUMPING TEST DATA

County : Shelby
Location: Carrier / Collierville

Observation well no. 1B
Pumped well no. _____

Average Q _____ gpm r = _____ ft. r^2 = _____

Date	Hour	t (min)	t' (min)	t/t'	Depth to water	s (unadjusted)	Adjustment Δs	s' (adjusted)	Q (gpm)	Remarks
4/18/88	11:00				58.61'					SWL
"	3:00	0								Pump On
"	6:40	330			58.63'	0.02				
4/19/88	6:49	949			58.91'	0.03				
"	7:36	996			58.91'	0.03				
"	2:07	1287			59.06'	0.45				
"	4:50	1550			59.06'	0.45				
4/20/88	08:45	2205			59.10'	0.49				
"	12:45	2745			59.08'	0.47				
"	5:46	3046			58.98	0.32				Pump off 7:30am 4/21
4/21/88	11:08	4388			58.78	0.17				

11.00 122-000

AQUIFER PUMPING TEST DATA

County : Shelby

Location: Carrier/Collierville

Observation well no. 1

Pumped well no. _____

Average Q _____ gpm r = _____ ft. r^2 = _____

Date	Hour	t (min)	t' (min)	t/t'	Depth to water	s (unadjusted)	Adjustment Δs	s' (adjusted)	Q (gpm)	Remarks
4/18/88	11:00				58.57'					SWL
"	3:00	-								Pump On
"	6:30	210			58.75'	0.18				
4/19/88	6:49	949			59.02'	0.45				
"	7:36	996			59.03'	0.46				
"	2:13	1393			59.19'	0.62				
"	4:55	1555			59.20'	0.63				
4/20/88	08:42	2502			59.20'	0.63				
"	12:40	2740			59.21'	0.64				
"	5:40	3040			59.13'	0.56				
4/21/88	11:12	4092			58.91'	0.34				Pump OFF 7:30 am

AQUIFER PUMPING TEST DATA

County : Shelby
Location: Carrier / Collierville

Observation well no. 3
Pumped well no. _____

Average Q _____ gpm r = _____ ft. r^2 = _____

Date	Hour	t (min)	t' (min)	t/t'	Depth to water	s (unadjusted)	Adjustment Δs	s' (adjusted)	Q (gpm)	Remarks
4/18/88	11:00				52.35'					SWL
"	3:00	0								Pump On
"	6:50	230			52.06'	-0.29				
4/19/88	7:00	960			52.24'	-0.11				
"	7:45	1005			52.24'	-0.11				
"	2:25	1405			52.37'	0.02				
"	5:06	1566			52.35'	0.00				
4/20/88	09:04	2524			52.25'	-0.10				
"	12:32	2732			52.24'	-0.11				
"	5:56	3056			52.09'	-0.26				
4/21/88	7:30	3270								Pump off
	11:20	4100			52.12	-0.23				

AQUIFER PUMPING TEST DATA

County : Shelby
Location: Carrier / Collierville

Observation well no. 4
Pumped well no. _____

Average Q _____ gpm r = _____ ft. r^2 = _____

Date	Hour	t (min)	t' (min)	t/t'	Depth to water	s (unadjusted)	Adjustment Δs	s' (adjusted)	Q (gpm)	Remarks
4/18/88	11:00				55.06'					SWL
"	3:00	0								Pump On
"	6:50	230			54.58'	0.48				
4/19/88	7:00	960			54.85'	0.21				
"	7:45	1005			54.86'	0.20				
"	2:20	1400			55.05'	-0.01				
? "	5:05	1565			55.02'	0.04				
4/20/88	09:06	2526			55.04'	0.02				
"	12:34	2734			55.07	0.01				
"	5:53	3053			54.95	0.11				
4/21/88	7:30	3870								Pump off
"	11:18	4098			54.84	0.22				

AQUIFER PUMPING TEST DATA

County : Shelby

Location: Carrier / Collierville

Observation well no. 5

Pumped well no. _____

Average Q _____ gpm r = _____ ft. r^2 = _____

Date	Hour	t (min)	t' (min)	t/t'	Depth to water	s (unadjusted)	Adjustment Δs	s' (adjusted)	Q (gpm)	Remarks
4/18/88	11:00				34.25'					SWL
"	3:00	0								Pump On
"	6:00	180			33.73'	0.52				
4/19/88	1:55	1375							—	Couldn't get unlocked
"	4:40	1540			33.75'	0.50				
4/20/88	09:23	2543			33.85'	0.40				
"	6:08	3068			33.80	0.45				
4/21/88	7:31	3870								Pump off
	11:38	4118			33.82	0.43				

AQUIFER PUMPING TEST DATA

County : Shelby

Location: Carrier / Collierville

Observation well no. 6

Pumped well no. _____

Average Q _____ gpm r = _____ ft. r^2 = _____

Date	Hour	t (min)	t' (min)	t/t'	Depth to water	s (unadjusted)	Adjustment Δs	s' (adjusted)	Q (gpm)	Remarks
4/18/88	11:00				59.08'					SWL
"	3:00	0			—					Pump On
"	6:00	180			59.34'	0.26				
4/19/88	6:36	936			59.62'	0.54				
"	7:26	986			59.65'	0.57				
"	1:50	1370			59.78'	0.70				
"	4:35	1535			59.76'	0.68				
4/20/88	09:21	2541			59.79'	0.71				
"	6:04	3064			59.63	0.55				
4/21/88	7:30	3870								Pump OFF
"	11:35	4115			59.38	0.30				

AQUIFER PUMPING TEST DATA

County : Shelby

Location: Carrier / Collierville

Observation well no. 9

Pumped well no. _____

Average Q _____ gpm r = _____ ft. r^2 = _____

Date	Hour	t (min)	t' (min)	t/t'	Depth to water	s (unadjusted)	Adjustment Δs	s' (adjusted)	Q (gpm)	Remarks
4/18/88	11:00				55.38'					SWL
"	3:00	0								Pump On
"	6:55	235			55.40'	0.02				
4/19/88	2:35	1415			55.37'	-0.01				
"	5:15	1575			55.39'	+0.01				
4/20/88	08:35	2495			55.40'	0.02				
"	12:54	2754			55.39'	0.01				
"	18:51	3111			55.38'	0.00				
4/21/88	11:02	4082			55.38	0.00				

AQUIFER PUMPING TEST DATA

County : Shelby

Location: Carrier / Collierville

Observation well no. 10

Pumped well no. _____

Average Q _____ gpm r = _____ ft. r^2 = _____

Date	Hour	t (min)	t' (min)	t/t'	Depth to water	s (unadjusted)	Adjustment Δs	s' (adjusted)	Q (gpm)	Remarks
4/18/88	11:00				58.65'					SWL
"	3:00	0								Pump On
"	7:00	240			58.83'	0.18				
4/19/88	6:43	942			59.11'	0.46				
"	7:33	993			59.12'	0.47				
"	2:30	1410			59.26'	0.61				
"	5:11	1571			59.26'	0.61				
4/20/88	08:31	2491			59.27'	0.62				
"	12:52	2752			59.22	0.57				
"	18:48	3108			59.11'	0.46				
4/21/88	11:00	4080			58.98'	0.33				

AQUIFER PUMPING TEST DATA

County : Shelby
Location: Carrier / Collierville

Observation well no. 11
Pumped well no. _____

Average Q _____ gpm r = _____ ft. r^2 = _____

Date	Hour	t (min)	t' (min)	t/t'	Depth to water	s (unadjusted)	Adjustment Δs	s' (adjusted)	Q (gpm)	Remarks
4/18/88	11:00				50.49'					SWL
"	3:00	0			—					Pump On
"	6:00	180			50.38'	-0.11				
4/19/88	1:35	1355			50.36'	-0.13				
"	4:28	1528			50.36'	-0.13				
4/20/88	09:39	2559			50.38'	-0.11				
"	13:25	2785			50.39'	-0.10				
"	18:15	3075			50.32	-0.17				
4/21/88	7:30	3870				—				Pump OFF
"	11:48	4128			50.38	-0.11				

AQUIFER PUMPING TEST DATA

County : Shelby

Location: Carrier / Collierville

Observation well no. 12

Pumped well no. _____

Average Q _____ gpm r = _____ ft. r^2 = _____

Date	Hour	t (min)	t' (min)	t/t'	Depth to water	s (unadjusted)	Adjustment Δs	s' (adjusted)	Q (gpm)	Remarks
4/18/88	11:00				59.94'					SWL
"	3:00	0			—					Pump On
"	6:00	180			60.26'	0.32				
4/19/88	6:32	932			60.46'	0.52				
"	7:22	782			60.48'	0.54				
"	1:42	1362			60.66'	0.72				
"	4:26	1526			60.57'	0.63				
4/20/88	09:37	2557			60.59'	0.65				
4/20/88	13:24	2784			60.59'	0.65				
"	18:18	3078			60.44	0.50				
4/21/88	7:38	3870								Pump OFF
"	11:45	4125			60.23	0.29				

+ EnSafe 2
Indicator

AQUIFER PUMPING TEST DATA

County : Shelby
Location: Carrier / Collierville

Observation well no. 13
Pumped well no. _____

Average Q _____ gpm r = _____ ft. r^2 = _____

Date	Hour	t (min)	t' (min)	t/t'	Depth to water	s (unadjusted)	Adjustment Δs	s' (adjusted)	Q (gpm)	Remarks
4/18/88	2:00				30.31'					SWL
"	3:00	0								Pump On
"	3:31	31			30.32'	0.01				
"	4:00	60			30.28'	0.03				
"	4:40	100			30.28'	0.03				
"	6:01	181			30.28'	0.03				
4/19/88	6:20	920			30.25'	0.06				
"	12:20	1280			30.25'	0.06				
"	4:05	1505			30.32'	0.01				
4/20/88	09:28	2548			30.26'	0.05				
"	13:13	2773			30.20'	0.11				
"	18:25	3085			30.15'	0.16				
4/21/88	7:30	3870								Pump OFF
	11:58	4138			30.16	0.15				

AQUIFER PUMPING TEST DATA

County : Shelby

Location: Carrier 7 Collierville

Observation well no. 15

Pumped well no. _____

Average Q _____ gpm r = _____ ft. r^2 = _____

Date	Hour	t (min)	t' (min)	t/t'	Depth to water	s (unadjusted)	Adjustment Δs	s' (adjusted)	Q (gpm)	Remarks
4/18/88	11:00				48.81'					SWL
"	3:00	0			—					Pump On
"	6:15	195			48.64'	-0.17				
4/19/88	2:00	1380			48.75'	-0.06				
"	4:45	1545			48.72'	-0.09				
4/20/88	09:15	2535			48.98'	0.17				
"	13:06	2766			48.97	0.16				
"	18:33	3093			48.92	0.11				
4/21/88	7:30	3870				—				Pump off
	11:28	4108			48.90	0.09				

AQUIFER PUMPING TEST DATA

County : Shelby
Location: Carrier / Collierville

Observation well no. 19
Pumped well no. _____

Average Q _____ gpm r = _____ ft. r^2 = _____

	Date	Hour	t (min)	t' (min)	t/t'	Depth to water	s (unadjusted)	Adjustment Δs	s' (adjusted)	Q (gpm)	Remarks
	4/18/88	11:00				49.67'					SWL
	"	3:00	0			—					Pump On
Olympic	"	3:30	30			49.88'	0.21				
	"	4:03	63			49.85'	0.18				
	"	4:40	100			49.88'	0.21				
	"	5:52	172			49.92'	0.25				
Olympic	4/19/88	2:03	1383			50.22'	0.55				
Ens. 2	"	2:45	1425			49.93'	0.26				
Olympic	"	2:46	1426			50.20'	0.53				
"	"	6:27	1647			50.21'	0.54				
	4/20/88	8:55	2515			50.22'	0.55				
	"	12:30	2730			50.15'	0.48				
	"	19:05	3125			51.03	0.36				

AQUIFER PUMPING TEST DATA

County : Shelby
Location: Carrier / Collierville

Observation well no. 21
Pumped well no. _____

Average Q _____ gpm r = _____ ft. r^2 = _____

	Date	Hour	t (min)	t' (min)	t/t'	Depth to water	s (unadjusted)	Adjustment Δs	s' (adjusted)	Q (gpm)	Remarks
	4/18/88	2:00				42.37'					SWL
	"	3:00									Pump On
Olympic	"	3:35	35			42.53'	0.16				
	"	4:06	66			42.52'	0.15				
	"	4:43	103			42.51'	0.14				
	"	5:55	175			42.52'	0.15				
Olympic Probe	4/19/88	2:49	1429			42.55'	0.18				
Estate	"	2:56	~~1436~~			42.32'	-0.05 ←		BAD DATA		
Olympic	"	2:07	1387			42.52'	0.15				
"	"	6:30PM	1650			42.56'	0.19				
"	4/20/88	9:00AM	2520			42.56	0.19				
"	"	12:33	2733			42.54	0.17				
	"	19:09	3129			42.56	0.19				
		7:00									

AQUIFER PUMPING TEST DATA

* Ersafe 2 Indicator

County : Shelby County
Location: Carrier / Collierville

Observation well no. 23
Pumped well no. _____

Average Q _____ gpm r = _____ ft. r^2 = _____

Date	Hour	t (min)	t' (min)	t/t'	Depth to water	s (unadjusted)	Adjustment Δs	s' (adjusted)	Q (gpm)	Remarks
4/18/88	SWL				30.67'					SWL
"	3:00	—	—	—	—	—	—	—	—	Pump On
"	3:36	36			30.63'	0.04				
"	4:02	62			30.59'	0.08				
"	4:45	105			30.64'	0.03				
"	7:00	240			30.64'	0.03				
4/19/88	6:24	924			30.68'	0.01				
"	3:19	1459			30.68'	0.01				
"	4:20	1520			30.65'	-0.02				
4/20/88	09:33	2553			30.64'	0.03				
"	13:19	2779			30.67'	0.00				
"	18:40	3100			30.60	0.07				
4/21/88	7:30	3870				—				Pump off
	11:55	4135			30.60	0.07				

APPENDIX L

SOIL GAS PILOT STUDY

REPORT OF SOIL VENTING PILOT TEST
NORTH REMEDIATION SITE
UNITED TECHNOLOGIES CARRIER CORPORATION
COLLIERVILLE, TENNESSEE
WGR JOB NO. 0000-89-121

Westinghouse
Groundwater Recovery

4440 Amwiler Road
Atlanta, Georgia 30360
(404) 449-9411
(800) 922-9497
Fax (404) 242-1919

October 6, 1989

United Technologies Carrier Corporation
97 South Byhalia Road
Collierville, Tennessee 38017

ATTENTION: Mr. Carl W. Krull

SUBJECT: Report of Soil Venting Pilot Test
North Remediation Site
United Technologies Carrier Corporation
Collierville, Tennessee
WGR Job No. 0000-89-121

Gentlemen:

Westinghouse Groundwater Recovery is pleased to present the findings of the soil venting pilot test that was performed at the subject site on July 19 and 20, 1989.

The objectives of the testing were to evaluate the effectiveness of the soil venting process for remediating the trichloroethylene contaminated soils beneath the subject site. The testing was performed at two different depths in the unsaturated soils on-site to determine what level or levels where the applied vacuum stress would yield the most effective results. The following is an Executive Summary of the findings.

EXECUTIVE SUMMARY

1. Pretest pressures at all monitoring points indicated that man-made stresses were being introduced into the soil

mass. These positive and negative pressures in the soil mass could not be induced by normal changes in atmospheric pressures but are believed to be created by the draw-down and rebound of the lower water table from the production wells being pumped near the test site.

2. The shallow soil venting test required that a high level of vacuum stress be applied on RW-6 of approximately 12 inches of mercury. The resulting radius of influence exceeded 136 feet with an average removal rate of 35 pounds of TCE per day. During the test, a stress reversal occurred that can only be attributed to the adjacent production wells.

3. The deep soil venting test required that a low level of vacuum stress be applied to RW-4 of approximately 2.8 inches of mercury. The resulting radius of influence exceeded 200 feet with an average contaminate removal rate of approximately 1000 pounds of TCE per day.

4. The rate of contaminant removal did decrease during the shallow soil venting test. This decrease in contaminant extraction rate was influenced partially by the stress reversal caused by the adjacent production wells. The

rate at which contaminates were being extracted during the deep soil venting test did not appreciatively decrease during the duration of the test.

5. Considering the higher rate of contaminate removal from the deeper wells at a much lower applied vacuum level as compared to the shallow wells and resulting larger radius of influence, it is recommended that only the deeper recovery wells be considered at this time for the long term remediation effort.

SYSTEM CONSTRUCTION

During the construction of the groundwater pump and treatment system for the deep well recovery system, (recovery wells RW-1 through RW-5) soil venting vacuum lines were installed to all the recovery wells. The soil venting recovery lines are manifolded into two separate systems. One piping system of vacuum lines connect all the 2-inch diameter shallow recovery wells RW-6 through RW-9, while the second set of vacuum lines connect the 4-inch diameter deep recovery wells RW-1 through RW-5 (see Figure 1).

Well head completion of both deep and shallow recovery wells are similar in that any recovery well can be isolated from the vacuum source by a gate valve. The well heads are also sealed in both systems by an internal compression O-ring seal in the internal diameter of the recovery well casing. The deep recovery well head completion offers the unique feature of allowing these recovery wells to be pumped while maintaining a sealed casing for soil venting to be performed. All well heads have a vacuum sample port that can be used to monitor the vacuum stress being applied at their individual locations. See Figure 2 and 3 for well head completions.

Both manifolded soil venting piping systems terminate at the skid mounted groundwater treatment system. Additional space and power have been supplied during design and construction of the treatment system to allow a vacuum source to be used for testing and for anticipated future long term remediation.

Recovery well installation was performed by EnSafe personnel. The deep 4-inch diameter recovery wells RW-1 through RW-5 were installed to depths of approximately 50 feet below existing grade. The screened interval was from 30 to 50 feet with the remainder of the bore hole cased and grouted. The shallow 2-inch recovery wells were installed to depths of

approximately 25 feet below existing grade with a screened interval between 15 to 25 feet. The remainder of the bore hole was cased and grouted.

TEST PROCEDURES

Prior to both soil venting tests, the vacuum pump was connected to one of the previously installed manifolded vacuum lines. All of the gate valves at the recovery wells were closed with the exception of the extraction well. For example, prior to the shallow soil venting test, all valves at the well heads were closed with the exception of RW-6. Monitoring well MW-21 was fitted with a temporary well head seal similar in construction to those installed on the shallow recovery wells.

Vacuum levels in all wells were measured and recorded prior to the test start-up.

During the test, on approximately hourly intervals, the following data was measured and or recorded.

1. Vacuum stress on the recovery test well.
2. Off-gas pipe velocity pressure.
3. Off-gas temperature.
4. Off-gas concentrations of TCE.
5. Vacuum influence at each of the other recovery wells and monitoring well MW-21.

This data along with computed gas volumes removed from the recovery well (SCFM) and contaminated removal rates (pound per day) are located in Tables 1 through 4 in the Appendix.

FINDINGS

Shallow Soil Venting Test

The shallow soil venting test was performed on July 19, 1989 and pretest soil pressure readings were positive in monitoring well MW-21 and all recovery wells. The positive pressure was approximately +0.60 inches of water in all wells (see Table 1).

Shallow Recovery Well MW-6 was chosen as the test extraction well because of the fine grain soils encountered during the well installation and was the closest shallow recovery well to monitoring well MW-21. Also, it was believed that any other shallow recovery well used for the pilot testing would not be close enough to stress the adjacent soil such that an effective change in stress could be measured in the outlying monitoring well MW-21.

The first round of well head pressures taken after the vacuum pump was started showed a reversal of the pretest positive well head pressures in all locations (see Table 1). Not until the 11:56 to 12:05 set of readings did all well head pressures become negative. Also at this sampling interval, the largest magnitude of negative well head pressures were recorded when using only RW-6 as the extraction point. The maximum vacuum stress subsurface contours for each strata are shown on Figures 4 and 5.

During the next four sampling intervals, the well head pressures became increasingly positive to the point where MW-21 and RW-4 were again showing positive well head pressures even though the vacuum level and gas flow from RW-6 remained appreciatively constant at 12.0 inches Hg and 81 SCFM, respectively (see Table 1 and 2).

It should be noted that during the same time frame the instantaneous rate of contaminate removal decreased from 54.9 to 29.9 pounds per day.

In order to determine if increased flow from the shallow recovery well system could reverse the positive well head pressures, the gate valve at recovery well RW-8 was opened to the vacuum pump. The vacuum stress reduced from 11.8 to 7.5

inches of Mercury and the net gas flow increased from 81 to 100 SCFM. It is of importance to note that all well head pressures returned to highest negative values recorded during the shallow soil venting test.

During the shallow soil venting test, approximately 12.3 pounds of TCE were removed. Instantaneous rates of removal of TCE ranged from a high of 54.7 pounds per day to a low of 23.7 pounds per day.

The extraction rate of gas flow remained fairly constant at 82 SCFM when RW-6 was used as the extraction point. The gas flow rate increased to 100 SCFM when RW-8 was added to RW-6. The discharge gas temperature averaged approximately 136° F throughout the shallow soil venting pilot test.

Deep Soil Venting Test

The deep soil venting test was performed on July 20, 1989. Here again, positive pretest well head pressures were encountered and ranged from +0.17 to +0.27 inches of water. The deep recovery well RW-4 was chosen as the test extraction well because of the coarser, sandier soils encountered during well installation near the termination depth of the bore hole. It was thought that this subsurface strata would allow the

applied vacuum stress to radiate to the furthest monitoring point MW-21. This assumption was confirmed during the deep well soil venting test.

After the vacuum stress was applied to RW-4, all the well head pressures became negative. The well head pressures became increasing negative up to the 13:41 to 13:47 readings. The 15:14 to 15:21 readings were slightly less negative which again indicated a possible stress reversal caused by the adjacent production wells. This reversal did not continue and the maximum negative well head pressures were recorded in the next round of measurements at 16:10 to 16:16. The maximum vacuum stress contours for each strata are shown on Figures 6 and 7.

During the deep soil venting test, approximately 250 pounds of TCE were removed. Instantaneous rates of removal of TCE ranged from a high of 1056 pounds per day to a low of 899 pounds per day.

The extraction rate of gas flow was a very constant 122 to 123 SCFM with a discharge temperature ranging from 111°F to 117°F.

CONCLUSIONS AND RECOMMENDATIONS

The shallow and deep soil venting test results indicate that the soil venting process will be effective in removal of the trichloroethylene from the soil mass. When comparing the results of the shallow and deep soil venting tests, it is evident that the resulting vacuum influence from extracting soil gases from the deep recovery well results in a larger radial influence and contaminate removal rates. The vacuum stress required during the deep soil venting test, approximately 2.8 inches of mercury, was far less than the 12 inches of mercury required for the shallow venting test. From the above observations, it is recommended that the deeper recovery wells be used initially for the long term soil venting recovery system. It is also recommended that the volume of soil gas removed be increased to 250 SCFM in order to counter any potential for a stress reversal due to the adjacent production wells.

This recommended flow can be obtained along with vacuum stress level of 40 inches of water with a 7 1/2 H.P. regenerative blower (see Figure 8). This type of vacuum source has many advantages over liquid ring or rotary vane vacuum sources. It requires no liquids for sealing or cooling, and has only one moving part and only one gas seal. The only possible

disadvantage with this type of vacuum source is that off gas temperature can be raised as much as 100°C. The off gas temperature becomes a factor when selecting the type of off gas treatment when required. High off gas temperatures are a disadvantage with carbon adsorption and condensing treatment alternatives. The off gas temperature at 40 inches of water vacuum as seen on Figure 8 would result in less than 25°C rise in off gas temperature at the recommended flow and should not cause any significant problems with a selected off gas treatment system should one be required.

In conclusion, the soil venting test results indicated that the deeper recovery wells should be used for the long term remediation and that a greater than 200 foot radius of influence can be expected from this system.

Should you have any questions concerning this report, please do not hesitate to contact me.

Very truly yours,

WESTINGHOUSE GROUNDWATER RECOVERY

Samuel L. Wells, P.E.
President

SLW/dcr

APPENDIX

TABLE :
Shallow Soil Vent Tes ate 7/19/89
Vacuum Applied to RW-6 from 08... to 16:00
Vacuum Applied to RW-6 and RW-8 from 16:00 to 17:36

ne	Well Head Vacuum inches Hg	Subsurface Vacuum (inches of water)								
		RW-1	RW-2	RW-3	RW-4	RW-5	RW-7	RW-8	RW-9	RW-21
19- 0834	Pretest	+0.64	+0.60	+0.64	+0.61	+0.65	+0.60	+0.58	+0.61	+0.62
:46- 09:55	12.0	-0.12	-0.32	+0.11	+0.16	-0.06	-2.81	-0.21	-1.59	+0.25
:55- 11:04	12.2	-0.32	-0.52	-0.09	-0.04	-0.29	-3.08	-0.45	-1.83	0.00
56- 2:05	12.0	-0.38	-0.58	-0.16	-0.10	-0.35	-3.16	-0.51	-1.90	-0.07
07- 3:15	12.0	-0.35	-0.58	-0.10	-0.06	-0.29	-3.10	-0.45	-1.83	-0.06
55- 4:03	11.8	-0.22	-0.42	+0.01	+0.07	-0.16	-2.99	-0.34	-1.73	+0.06
55- 5:03	11.9	-0.29	-0.50	-0.06	0.00	-0.25	-3.07	-0.42	-1.80	+0.01
51- 5:59	11.8	-0.22	-0.44	0.00	+0.05	-0.19	-3.00	-0.37	-1.74	+0.04
29- 6:35	7.5	-0.32	-0.51	-0.31	-0.33	-0.42	-4.64	---	-2.28	-0.04
28- 7:36	7.5	-0.40	-0.59	-0.39	-0.38	-0.50	-4.77	---	-2.37	-0.13
		Distance From RW-6 (feet)								
		25.0	25.0	79.0	79.0	37.0	45.0	75.0	45.0	136

TABLE 7

System Operation - Date 7-19-89
Shallow Soil Vent Test
Vacuum Applied to RW-6 at 8:57
Vacuum Applied to RW-6 and RW-8 at 16:00

ıe	Velocity Pressure inches H_2O	Flow SCFM	Total ppm TCE	Pounds per day (rate)	Run Time (days)	Accumulated Total Pounds Removed	Discharge Air Temperature °F
57	0.82	81	670	26.2			107°
					.048	1.27	
07	0.81	79	680	25.9			135°
					.028	2.00	
48	0.84	82	680	26.9			138°
					.044	3.19	
52	0.82	81	1400	54.7			137°
					.051	5.96	
05	0.82	81	1400	54.7			140°
					.033	7.76	
53	0.82	81	775	30.3			138°
					.039	8.96	
50	0.85	83	780	31.2			137°
					.042	10.27	
50	0.82	81	765	29.9			138°
					.049	11.74	
01	1.26	100	665	32.1			135°
					.018	12.32	
27	1.26	100	492	23.7			132°

TABLE :

Deep Soil Vent Test - Da 20-89
Vacuum Applied to RW-4

ie	Well Head Vacuum inches H_2O	Subsurface Vacuum (inches of water)								
		RW-1	RW-2	RW-3	RW-5	RW-6	RW-7	RW-8	RW-9	RW-21
32-0:46	Pretest	+0.27	+0.25	+0.22	+0.24	+0.23	+0.17	+0.18	+0.23	+0.24
12-1:18	-38.0	-0.54	-0.46	-0.88	-0.93	-0.40	-0.55	-1.11	-0.79	-0.10
47-1:52	-37.0	-0.94	-0.86	-1.25	-1.32	-0.83	-1.02	-1.54	-1.24	0.51
44-2:50	-37.0	-1.05	-0.97	-1.36	-1.43	-0.99	-1.16	-1.69	-1.36	-0.64
41-3:47	-37.0	-1.15	-1.08	-1.48	-1.55	-1.09	-1.28	-1.81	-1.49	-0.73
14-5:21	-38.0	-1.09	-1.02	-1.41	-1.48	-1.04	-1.23	-1.73	-1.43	-0.68
10-5:16	-38.0	-1.17	-1.10	-1.50	-1.57	-1.12	-1.32	-1.84	-1.52	-0.77
56-7:03	-38.0	-1.17	-1.11	-1.48	-1.56	-1.12	-1.31	-1.82	-1.52	-0.76
		Distance From RW-4 (feet)								
		75	90	50	45	79	62	25	37	200

TABLE

System Operation - Date 7-20-89

Deep Soil Vent Test
Vacuum Applied to RW-4 at 10:56

le	Velocity Pressure inches H_2O	Flow SCFM	Average ppm TCE	Pounds per day (rate)	Run Time (days)	Accumulated Total Pounds Removed	Discharge Air Temperature °F
56	1.85	122	18,800	1107			115°
					.032	36.1	
43	1.90	123	17,800	1056			112°
					.042	80.0	
43	1.90	123	17,200	1021			117°
					.039	120.4	
40	1.90	123	15,950	946			115°
					.052	169.7	
55	1.85	122	17,600	1036			111°
					.049	220.8	
)6	1.90	123	15,350	911			112°
					.032	250.5	
53	1.90	123	15,150	899			111°

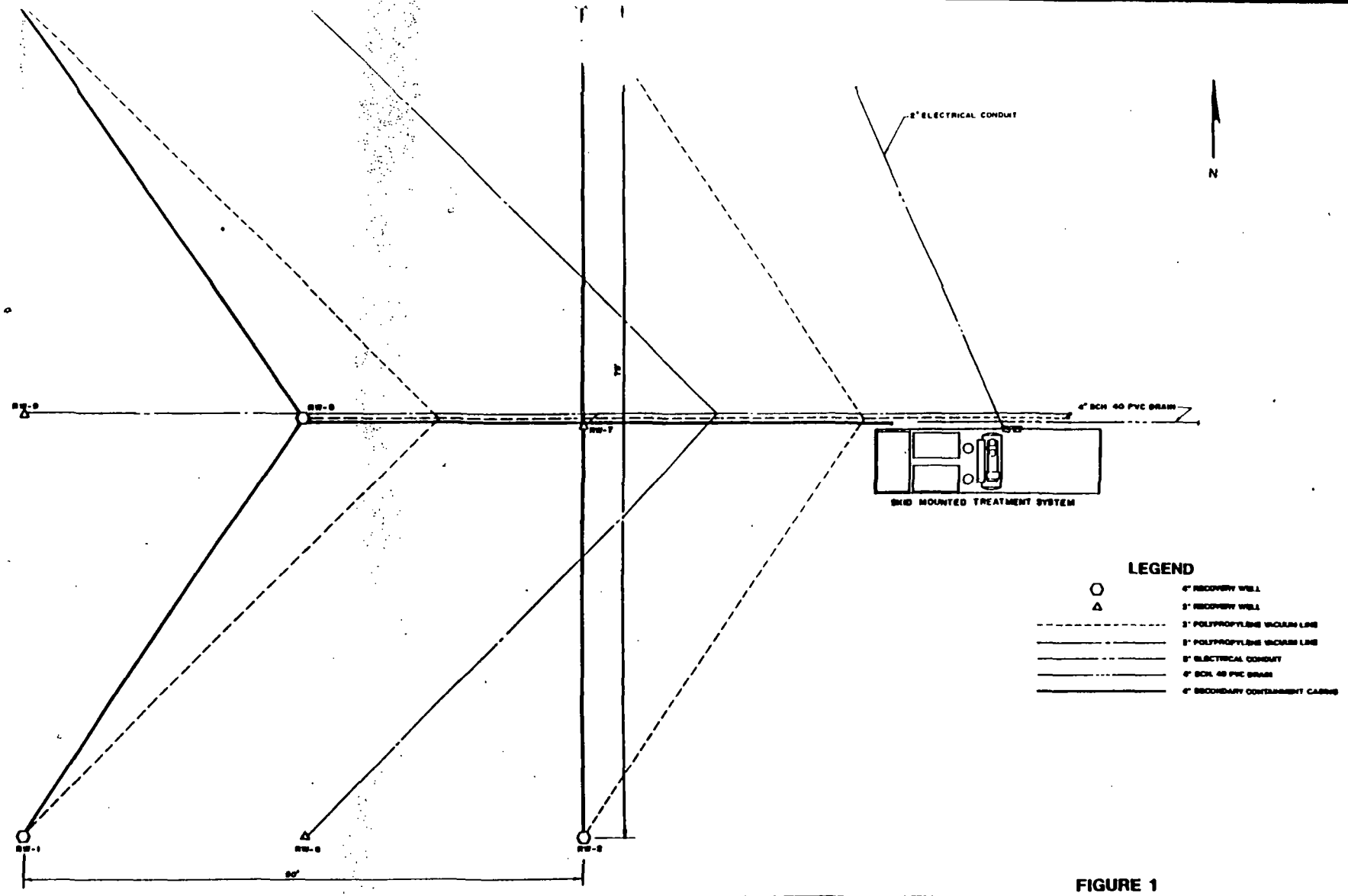


FIGURE 1

Westinghouse Groundwater Recovery
4440 Amwiler Road
Atlanta, GA 30360
(404) 449-9411

PIPING & EQUIPMENT LAYOUT
NORTH REMEDIATION SITE
UNITED TECHNOLOGIES CARRIER CORP
COLLIERVILLE TENNESSEE JOB No. 089-121

DESIGN BY: S.L.W.
DRAWING BY: J.E.B.
DATE: 8/18/89
SCALE: 1"=20'
SHEET 1 OF 3

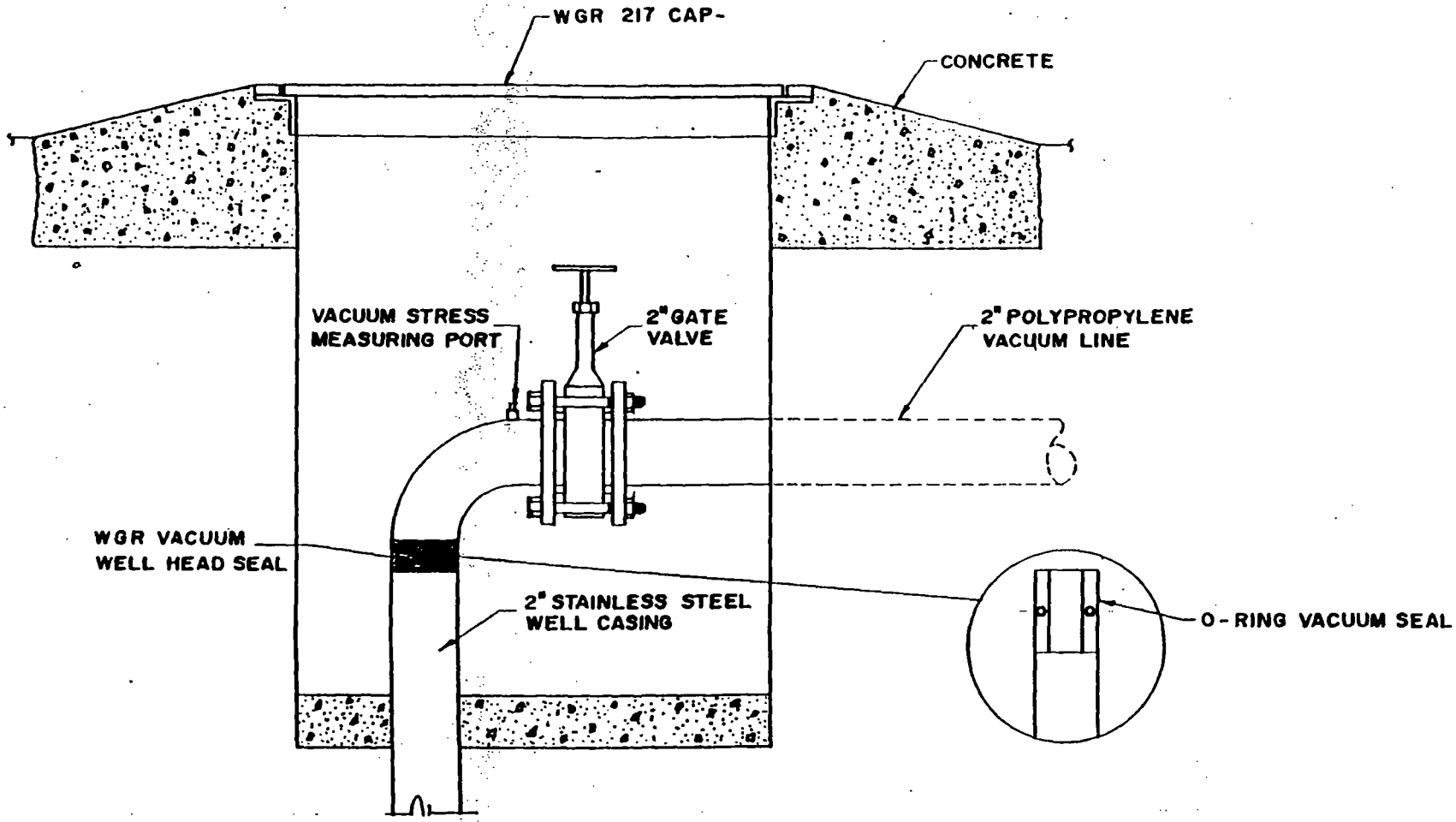


FIGURE 2

Westinghouse Groundwater Recovery

4440 Amwiler Road
Atlanta, GA 30360
(404) 449-9411

TYPICAL CROSS-SECTION OF WELL HEAD COMPLETION SHALLOW RECOVERY WELLS RW-6 THRU RW-9

DESIGN BY: S.L.W.
DRAWING BY: J.E.S.
DATE: 10/4/89
SCALE: 1/4"=1'-0"
SHEET 1 OF 1

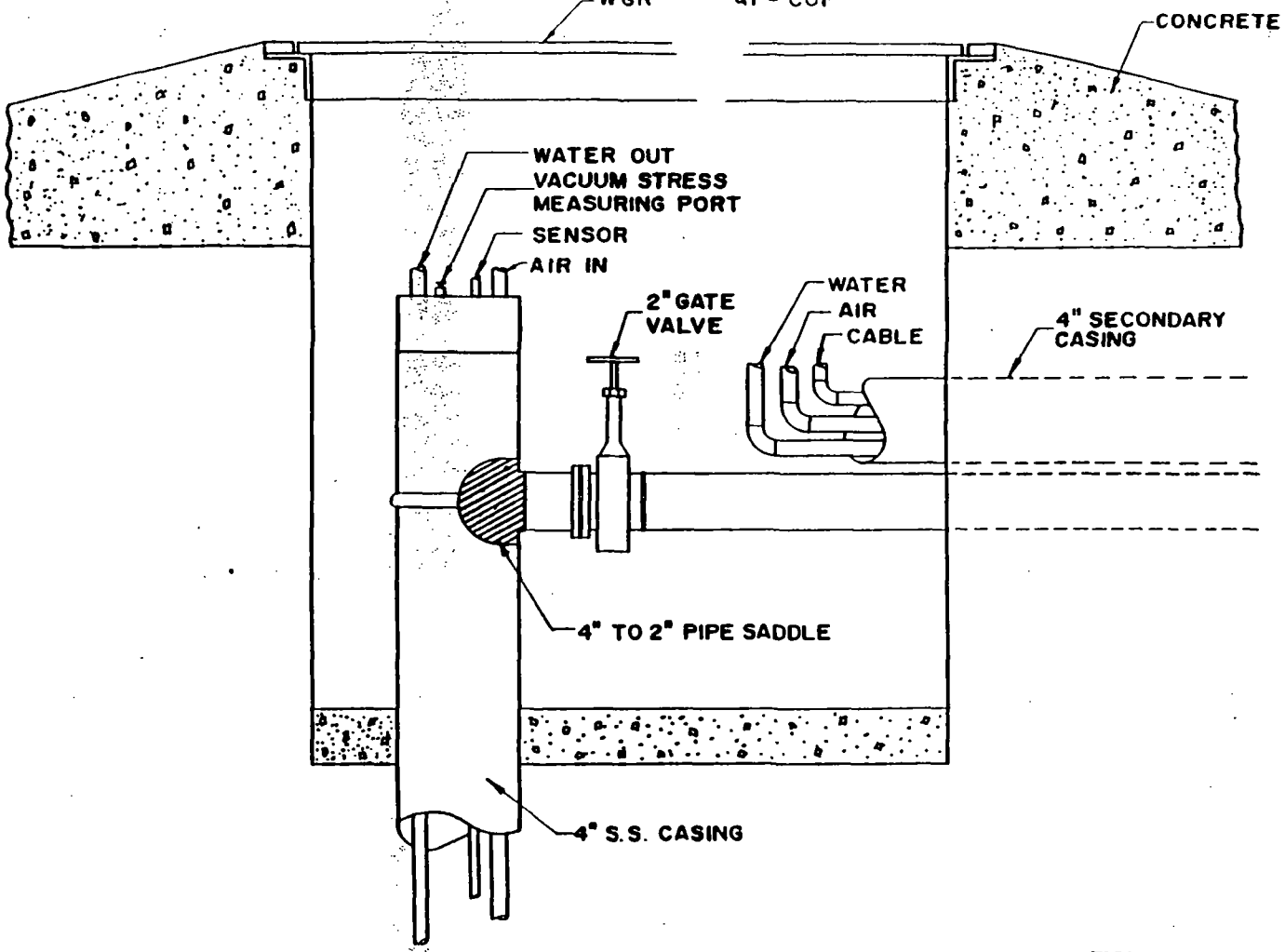


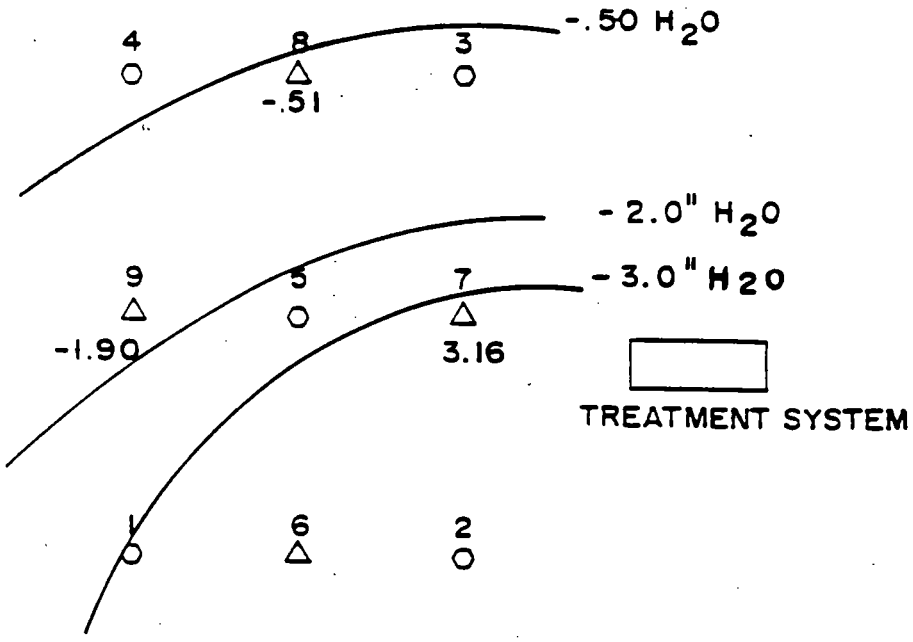
FIGURE 3

Westinghouse Groundwater Recovery

4440 Amwiler Road
Atlanta, GA 30360
(404) 449-9411

TYPICAL CROSS-SECTION OF WELL HEAD CONSTRUCTION DEEP RECOVERY WELLS RW-1 THRU RW-5

DESIGN BY: S.L.W.
DRAWING BY: J.E.S.
DATE: 10/4/89
SCALE: 1/4"=1'-0"
SHEET 1 OF 1



MW-21

FIGURE 4

MAXIUM VACUUM INFLUENCE ON SHALLOW WELLS
FROM SHALLOW WELL VENT TEST 12 IN. Hg APPLIED
VACUUM AT MW-6

Westinghouse Groundwater Recovery

DESIGN BY: S.L.W.
DRAWING BY: J.E.S.
DATE: 9/27/89

SITE PLAN
AND

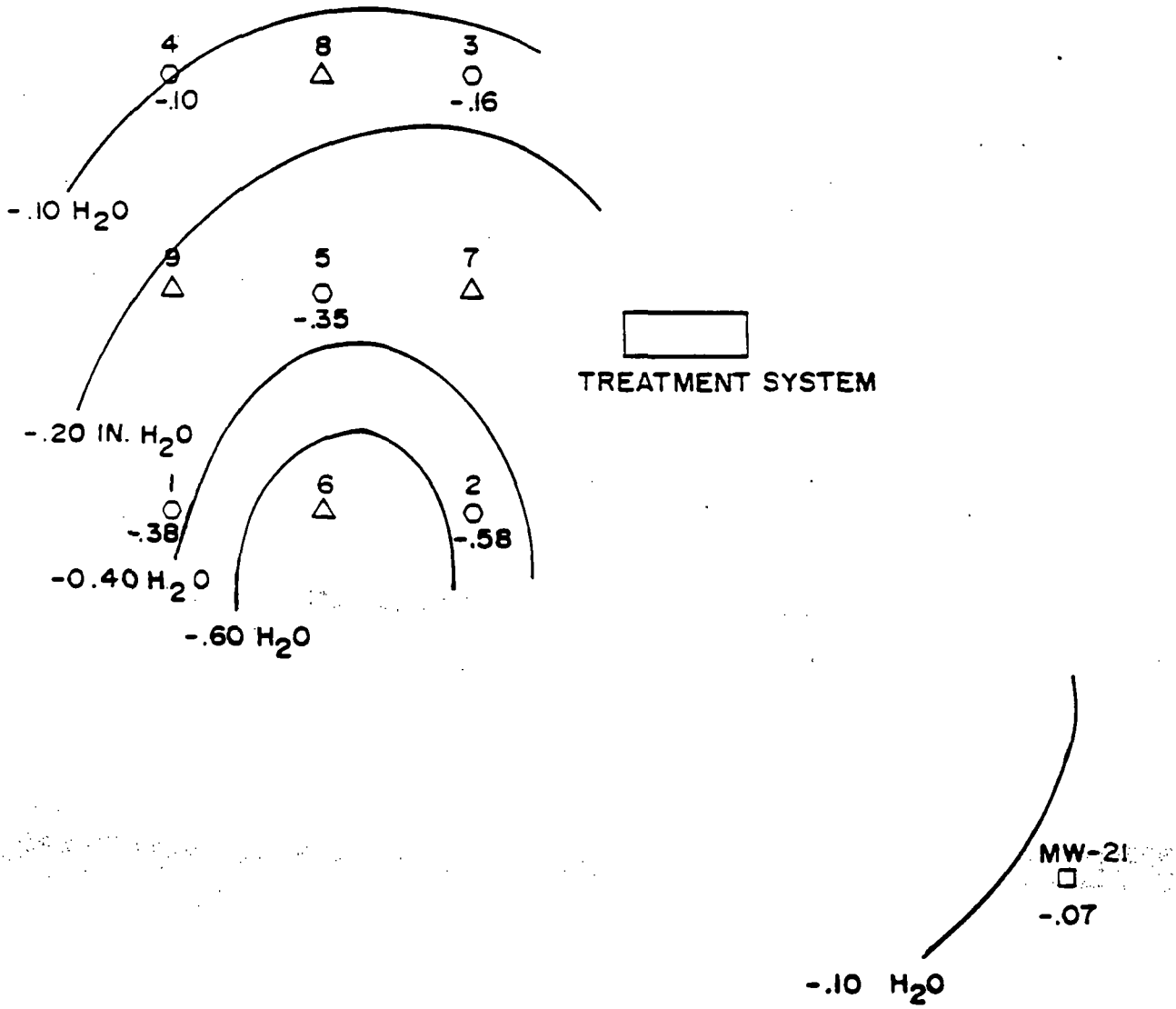


FIGURE 5

MAXIUM VACUUM INFLUENCE ON DEEP WELLS FROM SHALLOW WELL VENT TEST 12 IN. Hg APPLIED VACUUM AT MW-6

Westinghouse Groundwater Recovery 4440 Arrowler Road	DESIGN BY: S.L.W. DRAWING BY: J.E.S. DATE: 9/27/89	SITE PLAN AND

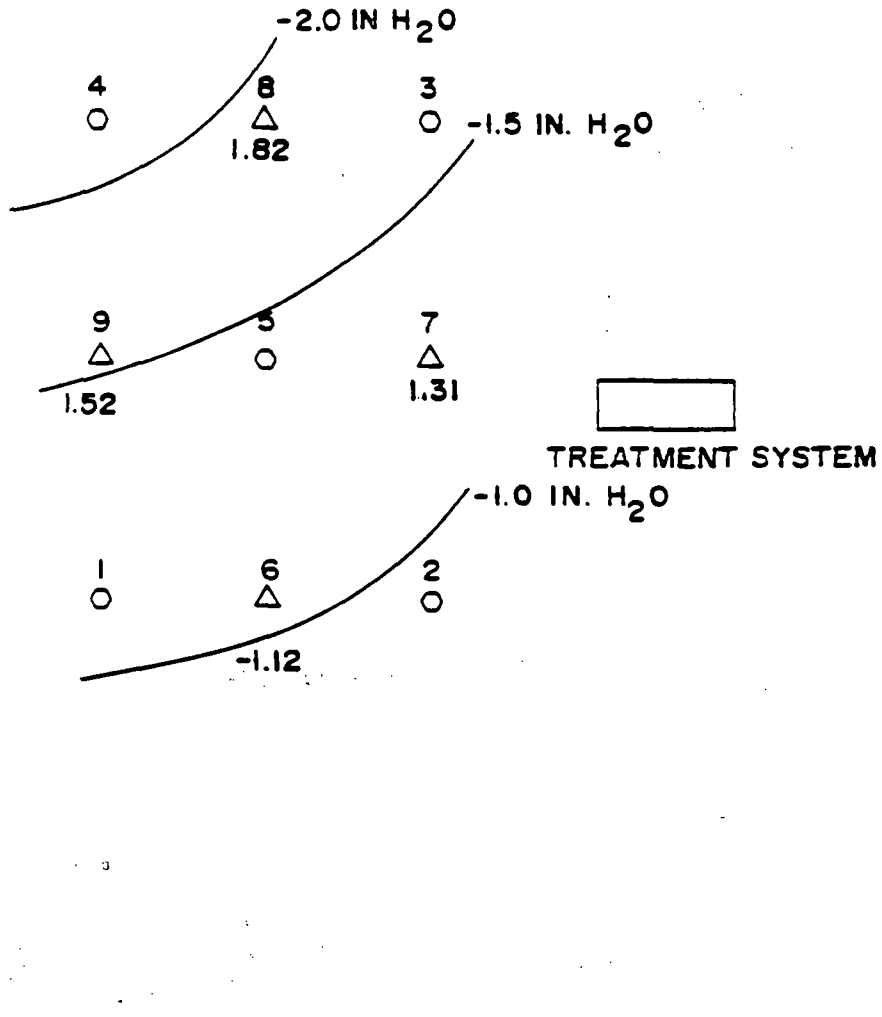


FIGURE 6

MAXIUM VACUUM INFLUENCE ON SHALLOW WELLS
FROM DEEP WELL VENTING TEST 38 IN. H_2O
APPLIED VACUUM AT MW-4

Westinghouse Groundwater Recovery

DESIGN BY: S.L.W.
DRAWING BY: J.E.S.
DATE: 9/27/89

SITE PLAN AND

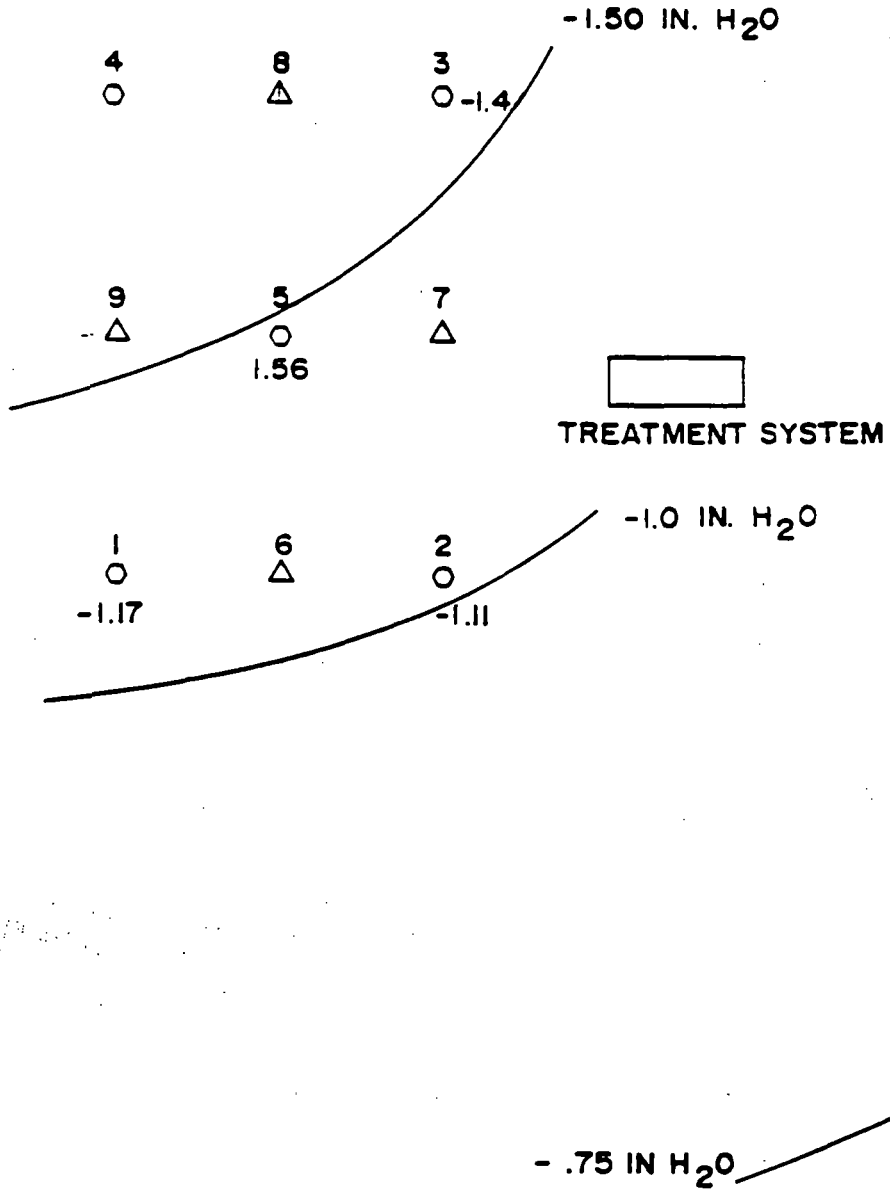


FIGURE 7

MAXIUM VACUUM INFLUENCE ON DEEP WELLS FROM DEEP WELL VENTING TEST 38 IN. H_2O APPLIED VACUUM AT MW-4.

Westinghouse Groundwater Recovery

DESIGN BY: S.L.W.
DRAWING BY: J.E.S.
DATE: 9/27/90

SITE PLAN AND

DR 808
Regenerative Blower

FEATURES

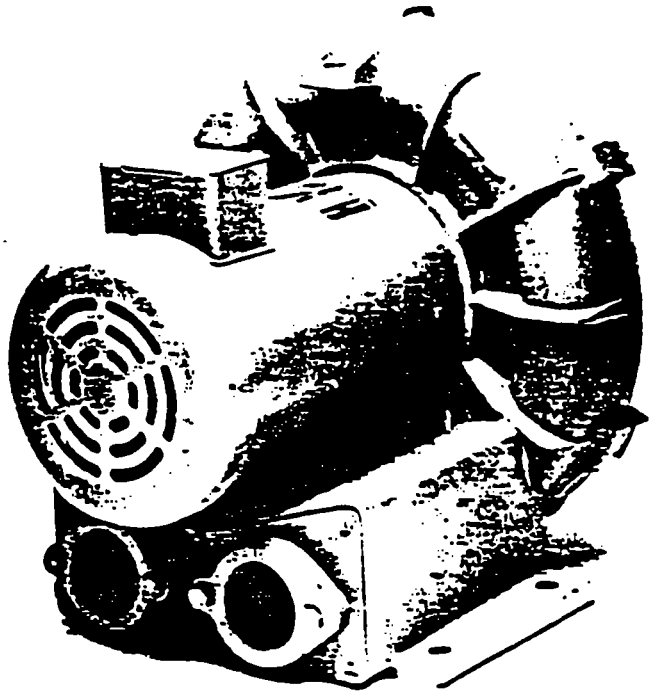
- Manufactured in the USA
- Maximum flow 345 SCFM
- Maximum pressure 116" WG
- Maximum vacuum 7.4" Hg
- 7.5 HP standard
- Blower construction—cast aluminum housing, impeller and cover
- Inlet and outlet internal muffling
- Noise level within OSHA standards
- Weight: 201 lbs. (91.0 Kg)

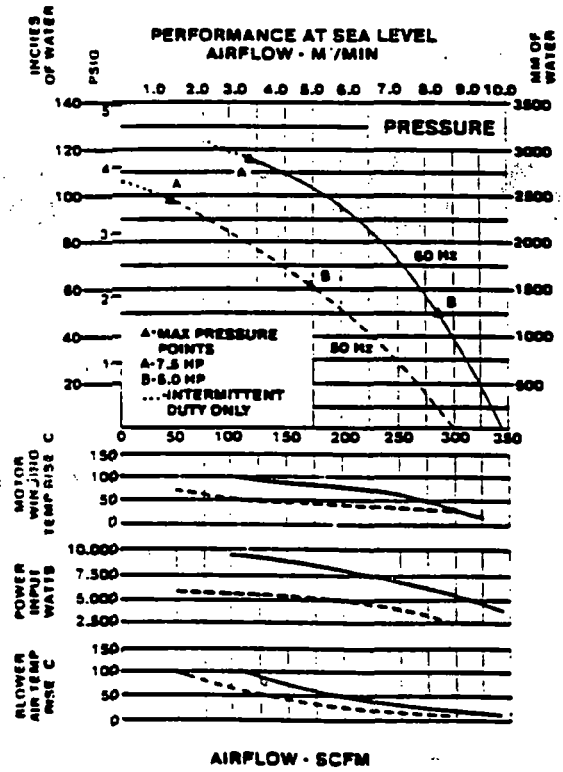
ACCESSORIES

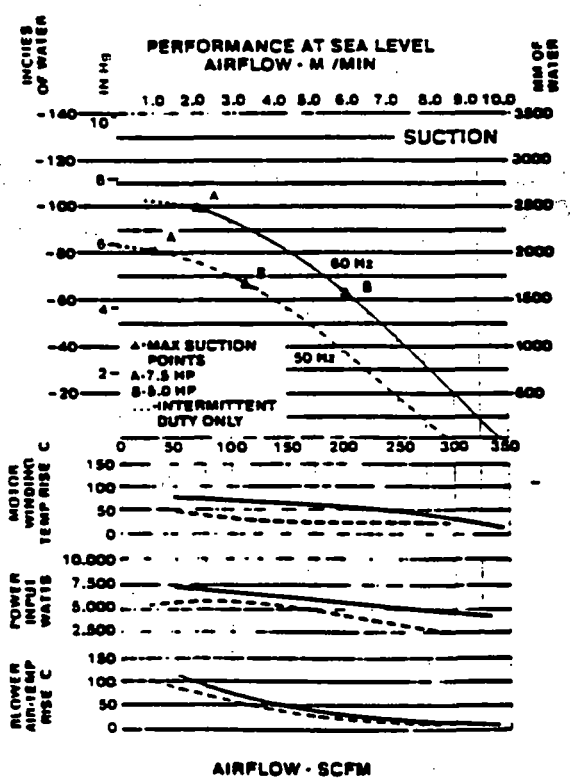
- External mufflers
- Slip-on flanges
- Inlet and/or inline filters
- For details see Accessories Section

OPTIONS

- Smaller HP motors
- 575-volt and XP motors
- Surface treatment or plating
- Single or three phase motors
- Gas tight sealing
- Belt drive (motorless) model; for details see Remote Drive Section







Westinghouse Groundwater Recovery

DESIGN BY:	S.L.W.
DRAWING BY:	J.E.S.
DATE:	9/27/89

FIGURE 8

APPENDIX M

SURFACE WATER DATA

SAMPLE IDENTIFICATIONS:

DSS1 = DOWNSTREAM NONCONNAH CREEK SEDIMENT
USS1 = UPSTREAM NONCONNAH CREEK SEDIMENT
NCI-3 = NONCONNAH CREEK AND TRIBUTARY SAMPLES
DITCH 1-3 = STORM WATER DITCH SAMPLES

COLLIERVILLE SITE: RESULTS OF ANALYSIS OF SURFACE WATER SAMPLES

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	DSS-1	USS-1	010587NC1	010587NC2
		SAMPLING DATE	06/29/90	06/29/90	01/05/87	01/05/87
		MATRIX	WATER	WATER	WATER	WATER
CMP	CL	COMPOUND UNITS	mg/l	mg/l	mg/l	mg/l
101	M	Antimony	BDL 9	BDL 8.5	* NS	* NS
102	M	Arsenic	19.3	19.8	* NS	* NS
103	M	Beryllium	0.8 B	2.1	* NS	* NS
104	M	Cadmium	BDL 1.3	BDL 1.2	* NS	* NS
105	M	Chromium	20.1	66.9	* NS	* NS
106	M	Copper	10.8	17.7	* NS	* NS
107	M	Lead	18.3	23.3	* NS	* NS
108	M	Mercury	BDL 0.12	BDL 0.11	* NS	* NS
109	M	Nickel	10.9	13.6	* NS	* NS
110	M	Selenium	BDL 0.51	BDL 0.49	* NS	* NS
111	M	Silver	BDL 2.1	BDL 1.9	* NS	* NS
112	M	Thallium	BDL 0.51	BDL 0.49	* NS	* NS
113	M	Zinc	29.3	50	* NS	* NS
114	M	Barium	126	136	* NS	* NS
115	M	Iron	23600	55900	* NS	* NS
116	M	Manganese	1570	2740	* NS	* NS
117	M	Vanadium	36.2	97.8	* NS	* NS
118	M	Aluminium	12000	10700	* NS	* NS
120	M	Cobalt	14	40.7	* NS	* NS
121	M	Magnesium	1020 B	967 B	* NS	* NS
129	M	Calcium	1850	1140 B	* NS	* NS
130	M	Sodium	179 B	BDL 110	* NS	* NS
131	M	Potassium	BDL 763	BDL 722	* NS	* NS
		UNITS	ug/kg	ug/kg	ug/kg	ug/kg
203	V	Benzene	BDL 6	BDL 6	BDL 5	BDL 5
205	V	Bromoform	BDL 6	BDL 6	BDL 10	BDL 10
206	V	Carbon tetrachloride	BDL 6	BDL 6	BDL 5	BDL 5
207	V	Chlorobenzene	BDL 6	BDL 6	BDL 5	BDL 5
208	V	Dibromochloromethane	BDL 6	BDL 6	BDL 5	BDL 5
209	V	Chloroethane	BDL 13	BDL 12	BDL 10	BDL 10
211	V	Chloroform	BDL 6	BDL 6	NA	NA
212	V	Bromodichloromethane	BDL 6	BDL 6	BDL 5	BDL 5
214	V	1,1-Dichloroethane	BDL 6	BDL 6	BDL 5	BDL 5
215	V	1,2-Dichloroethane	BDL 6	BDL 6	BDL 5	BDL 5
216	V	1,1-Dichloroethene	BDL 6	BDL 6	BDL 5	BDL 5
217	V	1,2-Dichloropropane	BDL 6	BDL 6	BDL 5	BDL 5
218	V	Cis-1,3-Dichloropropene	BDL 6	BDL 6	BDL 5	BDL 5
219	V	Ethylbenzene	BDL 6	BDL 6	BDL 5	BDL 5
220	V	Bromomethane	BDL 13	BDL 12	BDL 10	BDL 10
221	V	Chloromethane	BDL 13	BDL 12	BDL 10	BDL 10
222	V	Methylene chloride	130 B	31 B	4 B J	BDL 10
223	V	1,1,2,2-Tetrachloroethane	BDL 6	BDL 6	BDL 10	BDL 10
224	V	Tetrachloroethene	BDL 6	BDL 6	BDL 5	BDL 5
225	V	Toluene	BDL 6	BDL 6	BDL 5	BDL 5
227	V	1,1,1-Trichloroethane	BDL 6	BDL 6	BDL 5	BDL 5
228	V	1,1,2-Trichloroethane	BDL 6	BDL 6	BDL 5	BDL 5
229	V	Trichloroethene	BDL 6	BDL 6	BDL 5	BDL 5
231	V	Vinyl chloride	BDL 13	BDL 12	BDL 10	BDL 10
250	V	Trans-1,3-Dichloropropene	BDL 6	BDL 6	BDL 5	BDL 5
251	V	Styrene	BDL 6	BDL 6	NA	NA
252	V	Acetone	42 B	30 B	NA	NA
253	V	2-Butanone	8 B J	4 B J	NA	NA
254	V	Carbon disulfide	BDL 6	BDL 6	NA	NA
255	V	2-Hexanone	BDL 13	BDL 12	NA	NA
256	V	4-Methyl-2-pentanone	BDL 13	BDL 12	NA	NA
257	V	Vinyl acetate	BDL 13	BDL 12	NA	NA
289	V	Xylenes (Total)	BDL 6	BDL 6	NA	NA
299	V	1,2-Dichloroethene(Total)	BDL 6	BDL 6	BDL 5	BDL 5
*	V	2-Chloroethyl vinyl ether	NA	NA	BDL 10	BDL 10

* NS = Not sampled.

COLLIERVILLE SITE: RESULTS OF ANALYSIS OF SURFACE WATER SAMPLES

CMP	CL	COMPOUND	SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
			SAMPLE ID	010587NC3	DITCH-1	DITCH-2	DITCH-3
			SAMPLING DATE	01/05/87			
			MATRIX	WATER	WATER	WATER	WATER
			UNITS	mg/l	ug/l	ug/l	ug/l
101	M	Antimony		* NS	* NS	* NS	* NS
102	M	Arsenic		* NS	* NS	* NS	* NS
103	M	Beryllium		* NS	* NS	* NS	* NS
104	M	Cadmium		* NS	* NS	* NS	* NS
105	M	Chromium		* NS	* NS	* NS	* NS
106	M	Copper		* NS	* NS	* NS	* NS
107	M	Lead		* NS	* NS	* NS	* NS
108	M	Mercury		* NS	* NS	* NS	* NS
109	M	Nickel		* NS	* NS	* NS	* NS
110	M	Selenium		* NS	* NS	* NS	* NS
111	M	Silver		* NS	* NS	* NS	* NS
112	M	Thallium		* NS	* NS	* NS	* NS
113	M	Zinc		* NS	* NS	* NS	* NS
114	M	Barium		* NS	* NS	* NS	* NS
115	M	Iron		* NS	* NS	* NS	* NS
116	M	Manganese		* NS	* NS	* NS	* NS
117	M	Vanadium		* NS	* NS	* NS	* NS
118	M	Aluminium		* NS	* NS	* NS	* NS
120	M	Cobalt		* NS	* NS	* NS	* NS
121	M	Magnesium		* NS	* NS	* NS	* NS
129	M	Calcium		* NS	* NS	* NS	* NS
130	M	Sodium		* NS	* NS	* NS	* NS
131	M	Potassium		* NS	* NS	* NS	* NS
			UNITS	ug/kg	ug/kg	ug/kg	ug/kg
203	V	Benzene		BDL 5	BDL	BDL	BDL
205	V	Bromoform		BDL 10	BDL	BDL	BDL
206	V	Carbon tetrachloride		BDL 5	BDL	BDL	BDL
207	V	Chlorobenzene		BDL 5	BDL	BDL	BDL
208	V	Dibromochloromethane		BDL 5	BDL	BDL	BDL
209	V	Chloroethane		BDL 10	BDL	BDL	BDL
211	V	Chloroform		NA	BDL	BDL	BDL
212	V	Bromodichloromethane		BDL 5	BDL	BDL	BDL
214	V	1,1-Dichloroethane		BDL 5	BDL	BDL	BDL
215	V	1,2-Dichloroethane		BDL 5	BDL	BDL	BDL
216	V	1,1-Dichloroethene		BDL 5	BDL	BDL	BDL
217	V	1,2-Dichloropropane		BDL 5	BDL	BDL	BDL
218	V	Cis-1,3-Dichloropropene		BDL 5	BDL	BDL	BDL
219	V	Ethylbenzene		BDL 5	BDL	BDL	BDL
220	V	Bromomethane		BDL 10	BDL	BDL	BDL
221	V	Chloromethane		BDL 10	BDL	BDL	BDL
222	V	Methylene chloride		BDL 10	BDL	BDL	BDL
223	V	1,1,2,2-Tetrachloroethane		BDL 10	BDL	BDL	BDL
224	V	Tetrachloroethene		BDL 5	BDL	BDL	BDL
225	V	Toluene		BDL 5	BDL	BDL	BDL
227	V	1,1,1-Trichloroethane		BDL 5	BDL	BDL	BDL
228	V	1,1,2-Trichloroethane		BDL 5	BDL	BDL	BDL
229	V	Trichloroethene		BDL 5	BDL	BDL	BDL
231	V	Vinyl chloride		BDL 10	BDL	BDL	BDL
250	V	Trans-1,3-Dichloropropene		BDL 5	BDL	BDL	BDL
251	V	Styrene		NA	BDL	BDL	BDL
252	V	Acetone		NA	BDL	BDL	BDL
253	V	2-Butanone		NA	BDL	BDL	BDL
254	V	Carbon disulfide		NA	BDL	BDL	BDL
255	V	2-Hexanone		NA	BDL	BDL	BDL
256	V	4-Methyl-2-pentanone		NA	BDL	BDL	BDL
257	V	Vinyl acetate		NA	BDL	BDL	BDL
289	V	Xylenes (Total)		NA	BDL	BDL	BDL
299	V	1,2-Dichloroethene(Total)		BDL 5	BDL	BDL	BDL
*	V	2-Chloroethyl vinyl ether		BDL 10	BDL	BDL	

* NS = Not sampled.

APPENDIX N

COLLIERVILLE CITY WELL DATA

SAMPLE IDENTIFICATIONS:

CW-1:	EAST WELL
CW-2:	WEST WELL
CW-3:	AFTER AERATION BEFORE CHLORINATION (AABC)
CW-4:	AABC DUPLICATE
CW-5:	FIELD BLANK
CW-6:	FINISHED WATER
*AS:	AFTER STRIPPING

*This sample identification is for water that is collected from the air stripper that was installed in May, 1990. The water is treated before it is chlorinated.

COLLIERVILLE SITE: RESULTS OF FOURTH QUARTER SAMPLING OF CITY WELLS; NOVEMBER 19, 1990

		SITE	COLLIERVILLE		COLLIERVILLE		COLLIERVILLE		COLLIERVILLE	
		SAMPLE ID	111990CW1		111990CW1D		111990CW2		111990CW2D	
		LAB SAMPLE ID	CW1		CW1D		CW2		CW2D	
		SAMPLING DATE	11/19/90		11/19/90		11/19/90		11/19/90	
		MATRIX	WATER		WATER		WATER		WATER	
CMP	CL	COMPOUND	ug/l		ug/l		ug/l		ug/l	
101	M	Antimony	BDL	42.9	BDL	42.9	BDL	42.9	97	
102	M	Arsenic	BDL	0.7	BDL	0.7	BDL	0.7	BDL	0.7
103	M	Beryllium	BDL	1.4	BDL	1.4	BDL	1.4	BDL	1.4
104	M	Cadmium	BDL	3	BDL	3	BDL	3	BDL	3
105	M	Chromium	BDL	6.6	BDL	6.6	BDL	6.6	BDL	6.6
106	M	Copper	36		BDL	6.3	17 B		BDL	6.3
107	M	Lead	7.5		0.9 B		1.3 B		0.7 B	
108	M	Mercury	BDL	0.2	BDL	0.2	BDL	0.2	BDL	0.2
109	M	Nickel	BDL	9.4	BDL	9.4	BDL	9.4	BDL	9.4
110	M	Selenium	BDL	1.2	BDL	1.2	BDL	1.2	BDL	1.2
111	M	Silver	13		BDL	9.6	11		BDL	9.6
112	M	Thallium	BDL	0.7	BDL	0.6	BDL	0.7	BDL	0.6
113	M	Zinc	34		73		72		54	
114	M	Barium	BDL	41.2	BDL	41.2	BDL	41.2	BDL	41.2
115	M	Iron	BDL	59.4	BDL	59.4	BDL	59.4	BDL	59.4
116	M	Manganese	BDL	2.9	BDL	2.9	BDL	2.9	BDL	2.9
117	M	Vanadium	BDL	7.6	BDL	7.6	BDL	7.6	9 B	
118	M	Aluminum	BDL	31.6	BDL	31.6	BDL	31.6	BDL	31.6
120	M	Cobalt	BDL	12.1	BDL	12.1	BDL	12.1	BDL	12.1
121	M	Magnesium	BDL	1010	BDL	1010	BDL	1010	BDL	1010
129	M	Calcium	2960 B		2520 B		2740 B		2330 B	
130	M	Sodium	7270		5730		7320		5460	
131	M	Potassium	BDL	1210	BDL	1210	BDL	1210	BDL	1210
203	V	Benzene	BDL	5			BDL	5		
205	V	Bromoform	BDL	5			BDL	5		
206	V	Carbon tetrachloride	BDL	5			BDL	5		
207	V	Chlorobenzene	BDL	5			BDL	5		
208	V	Dibromochloromethane	BDL	5			BDL	5		
209	V	Chloroethane	BDL	10			BDL	10		
211	V	Chloroform	BDL	5			BDL	5		
212	V	Bromodichloromethane	BDL	5			BDL	5		
214	V	1,1-Dichloroethane	BDL	5			BDL	5		
215	V	1,2-Dichloroethane	BDL	5			BDL	5		
216	V	1,1-Dichloroethene	BDL	5			BDL	5		
217	V	1,2-Dichloropropane	BDL	5			BDL	5		
218	V	Cis-1,3-Dichloropropene	BDL	5			BDL	5		
219	V	Ethylbenzene	BDL	5			BDL	5		
220	V	Bromomethane	BDL	10			BDL	10		
221	V	Chloromethane	BDL	10			BDL	10		
222	V	Methylene chloride	2 B J				2 B J			
223	V	1,1,2,2-Tetrachloroethane	BDL	5			BDL	5		
224	V	Tetrachloroethene	BDL	5			BDL	5		
225	V	Toluene	BDL	5			BDL	5		
227	V	1,1,1-Trichloroethane	BDL	5			BDL	5		
228	V	1,1,2-Trichloroethane	BDL	5			BDL	5		
229	V	Trichloroethene	34				45			
231	V	Vinyl chloride	BDL	10			BDL	10		
250	V	Trans-1,3-Dichloropropene	BDL	5			BDL	5		
251	V	Styrene	BDL	5			BDL	5		
252	V	Acetone	7 B J				8 BJ			
253	V	2-Butanone	BDL	10			BDL	10		
254	V	Carbon disulfide	BDL	5			BDL	5		
255	V	2-Hexanone	BDL	10			BDL	10		
256	V	4-Methyl-2-pentanone	BDL	10			BDL	10		
257	V	Vinyl acetate	BDL	10			BDL	10		
289	V	Xylenes (Total)	BDL	5			BDL	5		
299	V	1,2-Dichloroethene(Total)	BDL	5			BDL	5		

COLLIERVILLE SITE: RESULTS OF FOURTH QUARTER SAMPLING OF CITY WELLS; NOVEMBER 19, 1990

		SITE	COLLIERVILLE		COLLIERVILLE		COLLIERVILLE		COLLIERVILLE	
		SAMPLE ID	111990CW3		111990CW3D		111990CW4		111990CW4D	
		LAB SAMPLE ID	CW3		CW3D		CW4		CW4D	
		SAMPLING DATE	11/19/90		11/19/90		11/19/90		11/19/90	
		MATRIX	WATER		WATER		WATER		WATER	
CMP	CL	COMPOUND	ug/l		ug/l		ug/l		ug/l	
101	M	Antimony	BDL	42.9	BDL	42.9	BDL	42.9	BDL	42.9
102	M	Arsenic	BDL	0.7	BDL	0.7	BDL	0.7	BDL	0.7
103	M	Beryllium	BDL	1.4	BDL	1.4	BDL	1.4	BDL	1.4
104	M	Cadmium	BDL	3	BDL	3	BDL	3	BDL	3
105	M	Chromium	BDL	6.6	BDL	6.6	BDL	6.6	BDL	6.6
106	M	Copper	9 B		7 B		24 B		BDL	6.3
107	M	Lead	1 B		0.5 B		3.2		0.3 B	
108	M	Mercury	BDL	0.2	BDL	0.2	BDL	0.2	BDL	0.2
109	M	Nickel	BDL	9.4	BDL	9.4	BDL	9.4	BDL	9.4
110	M	Selenium	BDL	1.2	BDL	1.2	BDL	1.2	BDL	1.2
111	M	Silver	BDL	9.6	BDL	9.6	BDL	9.6	BDL	9.6
112	M	Thallium	BDL	0.7	BDL	0.6	BDL	0.7	BDL	0.6
113	M	Zinc	20		25		81		115	
114	M	Barium	BDL	41.2	BDL	41.2	BDL	41.2	BDL	41.2
115	M	Iron	147		BDL	59.4	1490		145	
116	M	Manganese	BDL	2.9	BDL	2.9	BDL	2.9	4 B	
117	M	Vanadium	BDL	7.6	BDL	7.6	BDL	7.6	BDL	7.6
118	M	Aluminum	BDL	31.6	BDL	31.6	BDL	31.6	BDL	31.6
120	M	Cobalt	BDL	12.1	BDL	12.1	BDL	12.1	BDL	12.1
121	M	Magnesium	1060 B		BDL	1010	BDL	1010	BDL	1010
129	M	Calcium	3340 B		2370 B		2850 B		2970 B	
130	M	Sodium	10100		6300		8530		6590	
131	M	Potassium	BDL	1210	BDL	1210	BDL	1210	BDL	1210
203	V	Benzene	BDL	5			BDL	5		
205	V	Bromoform	BDL	5			BDL	5		
206	V	Carbon tetrachloride	BDL	5			BDL	5		
207	V	Chlorobenzene	BDL	5			BDL	5		
208	V	Dibromochloromethane	BDL	5			BDL	5		
209	V	Chloroethane	BDL	10			BDL	10		
211	V	Chloroform	BDL	5			BDL	5		
212	V	Bromodichloromethane	BDL	5			BDL	5		
214	V	1,1-Dichloroethane	BDL	5			BDL	5		
215	V	1,2-Dichloroethane	BDL	5			BDL	5		
216	V	1,1-Dichloroethene	BDL	5			BDL	5		
217	V	1,2-Dichloropropane	BDL	5			BDL	5		
218	V	Cis-1,3-Dichloropropene	BDL	5			BDL	5		
219	V	Ethylbenzene	BDL	5			BDL	5		
220	V	Bromomethane	BDL	10			BDL	10		
221	V	Chloromethane	BDL	10			BDL	10		
222	V	Methylene chloride	2 B J				BDL	5		
223	V	1,1,2,2-Tetrachloroethane	BDL	5			BDL	5		
224	V	Tetrachloroethene	BDL	5			BDL	5		
225	V	Toluene	BDL	5			BDL	5		
227	V	1,1,1-Trichloroethane	BDL	5			BDL	5		
228	V	1,1,2-Trichloroethane	BDL	5			BDL	5		
229	V	Trichloroethene	BDL	5			BDL	5		
231	V	Vinyl chloride	BDL	10			BDL	10		
250	V	Trans-1,3-Dichloropropene	BDL	5			BDL	5		
251	V	Styrene	BDL	5			BDL	5		
252	V	Acetone	9 BJ				8 B J			
253	V	2-Butanone	BDL	10			BDL	10		
254	V	Carbon disulfide	BDL	5			BDL	5		
255	V	2-Hexanone	BDL	10			BDL	10		
256	V	4-Methyl-2-pentanone	BDL	10			BDL	10		
257	V	Vinyl acetate	BDL	10			BDL	10		
289	V	Xylenes (Total)	BDL	5			BDL	5		
299	V	1,2-Dichloroethene(Total)	BDL	5			BDL	5		

COLLIERVILLE SITE: RESULTS OF FOURTH QUARTER SAMPLING OF CITY WELLS: NOVEMBER 19, 1990

		SITE	COLLIERVILLE		COLLIERVILLE		COLLIERVILLE		COLLIERVILLE	
		SAMPLE ID	111990CW5		111990CW5D		111990CW6		111990CW6D	
		LAB SAMPLE ID	CW5		CW5D		CW6		CW6D	
		SAMPLING DATE	11/19/90		11/19/90		11/19/90		11/19/90	
		MATRIX	WATER		WATER		WATER		WATER	
CMP	CL	COMPOUND	ug/l		ug/l		ug/l		ug/l	
101	M	Antimony	BDL	42.9	BDL	42.9	BDL	42.9	BDL	42.9
102	M	Arsenic	BDL	0.7	BDL	0.7	BDL	0.7	BDL	0.7
103	M	Beryllium	BDL	1.4	BDL	1.4	BDL	1.4	BDL	1.4
104	M	Cadmium	BDL	3	BDL	3	BDL	3	BDL	3
105	M	Chromium	14		BDL	6.6	12		BDL	6.6
106	M	Copper	BDL	6.3	BDL	6.3	BDL	6.3	BDL	6.3
107	M	Lead	0.4 B		0.6 B		1.1 B		0.9 B	
108	M	Mercury	BDL	0.2	BDL	0.2	BDL	0.2	BDL	0.2
109	M	Nickel	BDL	9.4	BDL	9.4	BDL	9.4	BDL	9.4
110	M	Selenium	BDL	1.2	BDL	1.2	BDL	1.2	BDL	1.2
111	M	Silver	BDL	9.6	BDL	9.6	BDL	9.6	BDL	9.6
112	M	Thallium	BDL	0.7	BDL	0.6	BDL	0.7	BDL	0.6
113	M	Zinc	BDL	4.5	11 B		BDL	4.5	18 B	
114	M	Barium	BDL	41.2	BDL	41.2	BDL	41.2	BDL	41.2
115	M	Iron	BDL	59.4	71 B		BDL	59.4	69 B	
116	M	Manganese	BDL	2.9	BDL	2.9	BDL	2.9	BDL	2.9
117	M	Vanadium	BDL	7.6	BDL	7.6	BDL	7.6	BDL	7.6
118	M	Aluminum	BDL	31.6	BDL	31.6	BDL	31.6	BDL	31.6
120	M	Cobalt	BDL	12.1	BDL	12.1	BDL	12.1	BDL	12.1
121	M	Magnesium	BDL	1010	BDL	1010	BDL	1010	BDL	1010
129	M	Calcium	BDL	586	BDL	586	4180 B		2080 B	
130	M	Sodium	BDL	1210	BDL	1210	8040		4810 B	
131	M	Potassium	BDL	1210	BDL	1210	BDL	1210	BDL	1210
203	V	Benzene	BDL	5			BDL	5		
205	V	Bromoform	BDL	5			BDL	5		
206	V	Carbon tetrachloride	BDL	5			BDL	5		
207	V	Chlorobenzene	BDL	5			BDL	5		
208	V	Dibromochloromethane	BDL	5			BDL	5		
209	V	Chloroethane	BDL	10			BDL	10		
211	V	Chloroform	0.7 J				BDL	5		
212	V	Bromodichloromethane	BDL	5			BDL	5		
214	V	1,1-Dichloroethane	BDL	5			BDL	5		
215	V	1,2-Dichloroethane	BDL	5			BDL	5		
216	V	1,1-Dichloroethene	BDL	5			BDL	5		
217	V	1,2-Dichloropropane	BDL	5			BDL	5		
218	V	Cis-1,3-Dichloropropene	BDL	5			BDL	5		
219	V	Ethylbenzene	BDL	5			BDL	5		
220	V	Bromomethane	BDL	10			BDL	10		
221	V	Chloromethane	BDL	10			BDL	10		
222	V	Methylene chloride	4 B J				2 B J			
223	V	1,1,2,2-Tetrachloroethane	BDL	5			BDL	5		
224	V	Tetrachloroethene	3 J				BDL	5		
225	V	Toluene	BDL	5			BDL	5		
227	V	1,1,1-Trichloroethane	BDL	5			BDL	5		
228	V	1,1,2-Trichloroethane	BDL	5			BDL	5		
229	V	Trichloroethene	BDL	5			BDL	5		
231	V	Vinyl chloride	BDL	10			BDL	10		
250	V	Trans-1,3-Dichloropropene	BDL	5			BDL	5		
251	V	Styrene	BDL	5			BDL	5		
252	V	Acetone	8 B J				9 BJ			
253	V	2-Butanone	BDL	10			BDL	10		
254	V	Carbon disulfide	BDL	5			BDL	5		
255	V	2-Hexanone	BDL	10			BDL	10		
256	V	4-Methyl-2-pentanone	BDL	10			BDL	10		
257	V	Vinyl acetate	BDL	10			BDL	10		
289	V	Xylenes (Total)	BDL	5			BDL	5		
299	V	1,2-Dichloroethene(Total)	BDL	5			BDL	5		

COLLIERVILLE SITE: RESULTS OF FOURTH QUARTER SAMPLING OF CITY WELLS; NOVEMBER 19, 1990

		SITE	COLLIERVILLE		COLLIERVILLE	
		SAMPLE ID	111990AS		111990ASD	
		LAB SAMPLE ID	AS		ASD	
		SAMPLING DATE	11/19/90		11/19/90	
		MATRIX	WATER		WATER	
CMP	CL	COMPOUND	ug/l		ug/l	
101	M	Antimony	BDL	42.9	BDL	42.9
102	M	Arsenic	BDL	0.7	BDL	0.7
103	M	Beryllium	BDL	1.4	BDL	1.4
104	M	Cadmium	BDL	3	BDL	3
105	M	Chromium	8 B		BDL	6.6
106	M	Copper	BDL	6.3	BDL	6.3
107	M	Lead	3		1 B	
108	M	Mercury	BDL	0.2	BDL	0.2
109	M	Nickel	BDL	9.4	BDL	9.4
110	M	Selenium	BDL	1.2	BDL	1.2
111	M	Silver	BDL	9.6	BDL	9.6
112	M	Thallium	BDL	0.7	BDL	0.6
113	M	Zinc	12 B		37	
114	M	Barium	BDL	41.2	BDL	41.2
115	M	Iron	118		BDL	59.4
116	M	Manganese	BDL	2.9	BDL	2.9
117	M	Vanadium	BDL	7.6	BDL	7.6
118	M	Aluminum	BDL	31.6	BDL	31.6
120	M	Cobalt	BDL	12.1	BDL	12.1
121	M	Magnesium	BDL	1010	BDL	1010
129	M	Calcium	2880 B		3190 B	
130	M	Sodium	6880		6160	
131	M	Potassium	BDL	1210	BDL	1210
203	V	Benzene	BDL	5		
205	V	Bromoform	BDL	5		
206	V	Carbon tetrachloride	BDL	5		
207	V	Chlorobenzene	BDL	5		
208	V	Dibromochloromethane	BDL	5		
209	V	Chloroethane	BDL	10		
211	V	Chloroform	BDL	5		
212	V	Bromodichloromethane	BDL	5		
214	V	1,1-Dichloroethane	BDL	5		
215	V	1,2-Dichloroethane	BDL	5		
216	V	1,1-Dichloroethene	BDL	5		
217	V	1,2-Dichloropropane	BDL	5		
218	V	Cis-1,3-Dichloropropene	BDL	5		
219	V	Ethylbenzene	BDL	5		
220	V	Bromomethane	BDL	10		
221	V	Chloromethane	BDL	10		
222	V	Methylene chloride	2 BJ			
223	V	1,1,2,2-Tetrachloroethane	BDL	5		
224	V	Tetrachloroethene	BDL	5		
225	V	Toluene	BDL	5		
227	V	1,1,1-Trichloroethane	BDL	5		
228	V	1,1,2-Trichloroethane	BDL	5		
229	V	Trichloroethene	BDL	5		
231	V	Vinyl chloride	BDL	10		
250	V	Trans-1,3-Dichloropropene	BDL	5		
251	V	Styrene	BDL	5		
252	V	Acetone	10 B			
253	V	2-Butanone	BDL	10		
254	V	Carbon disulfide	BDL	5		
255	V	2-Hexanone	BDL	10		
256	V	4-Methyl-2-pentanone	BDL	10		
257	V	Vinyl acetate	BDL	10		
289	V	Xylenes (Total)	BDL	5		
299	V	1,2-Dichloroethene(Total)	BDL	5		

METHOD 8010 RESULTS

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	111990CW1	111990CW2	111990CW3	111990CW4	111990CW5
		LAB SAMPLE ID	CW1	CW2	CW3	CW4	CW5
		SAMPLING DATE	11/19/90	11/19/90	11/19/90	11/19/90	11/19/90
		MATRIX	WATER	WATER	WATER	WATER	WATER
CMP	CL	COMPOUND	ug/l	ug/l	ug/l	ug/l	ug/l
203	V	Benzene					
205	V	Bromoform	ND	ND	ND	ND	ND
206	V	Carbon tetrachloride	ND	ND	ND	ND	ND
207	V	Chlorobenzene	ND	ND	ND	ND	ND
208	V	Dibromochloromethane	ND	ND	ND	ND	ND
209	V	Chloroethane	ND	ND	ND	ND	ND
211	V	Chloroform	ND	ND	ND	ND	ND
212	V	Bromodichloromethane	ND	ND	ND	ND	ND
214	V	1,1-Dichloroethane	ND	ND	ND	ND	ND
215	V	1,2-Dichloroethane	ND	ND	ND	ND	ND
216	V	1,1-Dichloroethene	ND	ND	ND	ND	ND
217	V	1,2-Dichloropropane	ND	ND	ND	ND	ND
218	V	Cis-1,3-Dichloropropene	ND	ND	ND	ND	ND
219	V	Ethylbenzene					
220	V	Bromomethane	ND	ND	ND	ND	ND
221	V	Chloromethane	ND	ND	ND	ND	ND
222	V	Methylene chloride	ND	ND	ND	ND	ND
223	V	1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND
224	V	Tetrachloroethene	ND	ND	ND	ND	ND
225	V	Toluene					
227	V	1,1,1-Trichloroethane	ND	ND	ND	ND	ND
228	V	1,1,2-Trichloroethane	ND	ND	ND	ND	ND
229	V	Trichloroethene	28	45	ND	ND	ND
231	V	Vinyl chloride	ND	ND	ND	ND	ND
250	V	Trans-1,3-Dichloropropene	ND	ND	ND	ND	ND
251	V	Styrene					
252	V	Acetone					
253	V	2-Butanone					
254	V	Carbon disulfide					
255	V	2-Hexanone					
256	V	4-Methyl-2-pentanone					
257	V	Vinyl acetate					
289	V	Xylenes (Total)					
299	V	1,2-Dichloroethene(Total)	ND	ND	ND	ND	ND
	V	Trihlorodifluoromethane	ND	ND	ND	ND	ND
	V	1,1-Dichloroethylene	ND	ND	ND	ND	ND
	V	2-Chloroethylvinylether	ND	ND	ND	ND	ND
	V	1,3-Dichlorobenzene	ND	ND	ND	ND	ND
	V	1,2-Dichlorobenzene	ND	ND	ND	ND	ND
	V	1,4-Dichlorobenzene	ND	ND	ND	ND	ND

*ND -Not detected at or above the method detection limit of 1.0

METHOD 8010 RESULTS

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	111990CW6	111990AS	111990GMW	111990GMW	111990GMW
		LAB SAMPLE ID	CW6	AS	001	002	003
		SAMPLING DATE	11/19/90	11/19/90	11/19/90	11/19/90	11/19/90
		MATRIX	WATER	WATER	WATER	WATER	WATER
CMP	CL	COMPOUND	ug/l	ug/l	ug/l	ug/l	ug/l
203	V	Benzene					
205	V	Bromoform	ND	ND	ND	ND	ND
206	V	Carbon tetrachloride	ND	ND	ND	ND	ND
207	V	Chlorobenzene	ND	ND	ND	ND	ND
208	V	Dibromochloromethane	ND	ND	ND	ND	ND
209	V	Chloroethane	ND	ND	ND	ND	ND
211	V	Chloroform	ND	ND	ND	ND	ND
212	V	Bromodichloromethane	ND	ND	ND	ND	ND
214	V	1,1-Dichloroethane	ND	ND	ND	ND	ND
215	V	1,2-Dichloroethane	ND	ND	ND	ND	ND
216	V	1,1-Dichloroethene	ND	ND	ND	ND	ND
217	V	1,2-Dichloropropane	ND	ND	ND	ND	ND
218	V	Cis-1,3-Dichloropropene	ND	ND	ND	ND	ND
219	V	Ethylbenzene					
220	V	Bromomethane	ND	ND	ND	ND	ND
221	V	Chloromethane	ND	ND	ND	ND	ND
222	V	Methylene chloride	ND	ND	ND	ND	ND
223	V	1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND
224	V	Tetrachloroethene	ND	ND	ND	ND	ND
225	V	Toluene					
227	V	1,1,1-Trichloroethane	ND	ND	ND	ND	ND
228	V	1,1,2-Trichloroethane	ND	ND	ND	ND	ND
229	V	Trichloroethene	ND	ND	ND	ND	ND
231	V	Vinyl chloride	ND	ND	ND	ND	ND
250	V	Trans-1,3-Dichloropropene	ND	ND	ND	ND	ND
251	V	Styrene					
252	V	Acetone					
253	V	2-Butanone					
254	V	Carbon disulfide					
255	V	2-Hexanone					
256	V	4-Methyl-2-pentanone					
257	V	Vinyl acetate					
289	V	Xylenes (Total)					
299	V	1,2-Dichloroethene(Total)	ND	ND	ND	ND	ND
	V	Trihlorodifluoromethane	ND	ND	ND	ND	ND
	V	1,1-Dichloroethylene	ND	ND	ND	ND	ND
	V	2-Chloroethylvinylether	ND	ND	ND	ND	ND
	V	1,3-Dichlorobenzene	ND	ND	ND	ND	ND
	V	1,2-Dichlorobenzene	ND	ND	ND	ND	ND
	V	1,4-Dichlorobenzene	ND	ND	ND	ND	ND

COLLIERVILLE SITE: RESULTS OF APRIL GROUNDWATER SAMPLING EVENT

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLE ID	041991CW1	041991CW2	041991AS
		LAB SAMPLE ID	041991CW1	041991CW2	041991AS
		SAMPLING DATE	04/19/91	04/19/91	04/19/91
		MATRIX	WATER	WATER	WATER
CMP	CL	COMPOUND	ug/l	ug/l	ug/l
203	V	Benzene	ND	ND	ND
205	V	Bromoform	ND	ND	ND
206	V	Carbon tetrachloride	ND	ND	ND
207	V	Chlorobenzene	ND	ND	ND
208	V	Dibromochloromethane	ND	ND	ND
209	V	Chloroethane	ND	ND	ND
211	V	Chloroform	ND	ND	ND
212	V	Bromodichloromethane	ND	ND	ND
214	V	1,1-Dichloroethane	ND	ND	ND
215	V	1,2-Dichloroethane	ND	ND	ND
216	V	1,1-Dichloroethene			
217	V	1,2-Dichloropropane	ND	ND	ND
218	V	Cis-1,3-Dichloropropene	ND	ND	ND
219	V	Ethylbenzene	ND	ND	ND
220	V	Bromomethane	ND	ND	ND
221	V	Chloromethane	ND	ND	ND
222	V	Methylene chloride	ND	ND	ND
223	V	1,1,2,2-Tetrachloroethane	ND	ND	ND
224	V	Tetrachloroethene	ND	ND	ND
225	V	Toluene	ND	ND	ND
227	V	1,1,1-Trichloroethane	ND	ND	ND
228	V	1,1,2-Trichloroethane	ND	ND	ND
229	V	Trichloroethene			
231	V	Vinyl chloride	ND	ND	ND
250	V	Trans-1,3-Dichloropropene	ND	ND	ND
251	V	Styrene			
252	V	Acetone			
253	V	2-Butanone			
254	V	Carbon disulfide			
255	V	2-Hexanone			
256	V	4-Methyl-2-pentanone			
257	V	Vinyl acetate			
289	V	Xylenes (Total)			
299	V	1,2-Dichloroethene(Total)	ND	ND	ND
	V	Trihlorodifluoromethane	ND	ND	ND
	V	1,1-Dichloroethylene	ND	ND	ND
	V	2-Chloroethylvinylether	ND	ND	ND
	V	1,3-Dichlorobenzene	ND	ND	ND
	V	1,2-Dichlorobenzene	ND	ND	ND
	V	1,4-Dichlorobenzene	ND	ND	ND
	V	1,1,2-Trichloroethylene	20.41	102.5	1.34
	V	Dichlorodifluoromethane	ND	ND	ND

*ND – Not detected at or above the method detection limit of 1.0

CITY WELL RESULTS

METHOD 601 RESULTS

	SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
	SAMPLE ID	111991CW1	111991CW2	111991AS
	LAB SAMPLE ID	111991CW1	111991CW2	111991AS
	SAMPLING DATE	11/19/91	11/19/91	11/19/91
	MATRIX	WATER	WATER	WATER
CMPCL	COMPOUND	ug/l	ug/l	ug/l
205 V	Bromoform	ND	ND	ND
206 V	Carbon tetrachloride	ND	ND	ND
207 V	Chlorobenzene	ND	ND	ND
208 V	Dibromochloromethane	ND	ND	ND
209 V	Chloroethane	ND	ND	ND
211 V	Chloroform	ND	ND	ND
212 V	Bromodichloromethane	ND	ND	ND
214 V	1,1-Dichloroethane	ND	ND	ND
215 V	1,2-Dichloroethane	ND	ND	ND
217 V	1,2-Dichloropropane	ND	ND	ND
218 V	Cis-1,3-Dichloropropene	ND	ND	ND
220 V	Bromomethane	ND	ND	ND
221 V	Chloromethane	ND	ND	ND
222 V	Methylene chloride	ND	ND	ND
223 V	1,1,2,2-Tetrachloroethane	ND	ND	ND
227 V	1,1,1-Trichloroethane	ND	ND	ND
228 V	1,1,2-Trichloroethane	ND	ND	ND
231 V	Vinyl chloride	ND	ND	ND
250 V	Trans-1,3-Dichloropropene	ND	ND	ND
V	Trans-1,2-Dichloroethylene	ND	ND	ND
V	Trihlorodifluoromethane	ND	ND	ND
V	1,1-Dichloroethylene	ND	ND	ND
V	2-Chloroethylvinylether	ND	ND	ND
V	1,3-Dichlorobenzene	ND	ND	ND
V	1,2-Dichlorobenzene	ND	ND	ND
V	1,4-Dichlorobenzene	ND	ND	ND
V	Dichlorodifluoromethane	ND	ND	ND
V	1,1,2-Trichloroethylene	11	79	ND
V	1,1,2,2-Tetrachloroethylene	ND	ND	ND
V	Cis-1,2-Dichloroethylene	ND	ND	ND

*ND – Not detected at or above the method detection limit of 1.0

CW1 = EAST WELL
CW2 = WEST WELL
AS = FINISHED WATER

APPENDIX O

COLLIERVILLE PRIVATE WELLS

Sampled March 22 & 23, 1990

ADDRESS	SAMPLE LOCATION	SAMPLE ID NUMBER
1. M.L. Dowdy 10898 Collierville Rd.	PW101	052290101
2. Taylor 10842 Collierville Rd.	PW102	052290102
3. B.J. White 10600 Collierville Rd.	PW103	052290103
4. Dr. Harold A. McCormack 510 Bray Station Rd.	PW104	052290104
5. 719 Piper St.(Piper Co.)	PW105	052290105
6. Dr. John W. Bennett 600 S. Byhalia Rd.	PW106	052390106
7. P. Duke 1545 S. Byhalia Rd.	PW107	052390107
8. John R. Patterson 635 Sycamore Rd.	PW108	052390108
9. Harris 626 S. Byhalia Rd.	PW109	052390109
10. Ford Tractor Training Ctr. (Tennessee Highway 72)	PW110	052390110

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLING ID	052290101	052290102	052290103	052290104
		LAB SAMPLE ID	052290101	052290102	052290103	052290104
		SAMPLING DATE	05/22/90	05/22/90	05/22/90	05/22/90
		MATRIX	WATER	WATER	WATER	WATER
CMP	CL	COMPOUND	ug/l	ug/l	ug/l	ug/kg
101	M	Antimony	BDL 39	BDL 39	BDL 39	BDL 39
102	M	Arsenic	BDL 3	BDL 3	BDL 3	BDL 3
103	M	Beryllium	BDL 1	BDL 1	BDL 1	BDL 1
104	M	Cadmium	BDL 5	BDL 5	BDL 5	BDL 5
105	M	Chromium	BDL 7	BDL 7	BDL 7	BDL 7
106	M	Copper	97.2	17.2 B	8.6 B	17.1 B
107	M	Lead	BDL 2	BDL 2	BDL 2	6.8
108	M	Mercury	BDL 0.2	BDL 0.2	BDL 0.2	BDL 0.2
109	M	Nickel	BDL 34	BDL 34	BDL 34	BDL 34
110	M	Selenium	BDL 10	BDL 10	BDL 10	BDL 10
111	M	Silver	BDL 4	BDL 4	BDL 4	BDL 4
112	M	Thallium	BDL 3	BDL 3	BDL 3	BDL 3
113	M	Zinc	57.8	11.7 B	16.6 B	1330
114	M	Barium	10.9 B	13.2 B	21 B	22.2 B
115	M	Iron	120	45.6 B	11.2 B	15.2 B
116	M	Manganese	BDL 4	BDL 4	BDL 4	BDL 4
117	M	Vanadium	BDL 5	BDL 5	BDL 5	BDL 5
118	M	Aluminum	BDL 23	BDL 23	BDL 23	24.2 B
120	M	Cobalt	BDL 7	BDL 7	BDL 7	BDL 7
121	M	Magnesium	1040 B	1120 B	2010 B	2030 B
129	M	Calcium	2560 B	2970 B	5420	5110
130	M	Sodium	5940	8290	14100	14200
131	M	Potassium	BDL 3970	BDL 3970	BDL 3970	BDL 3970
203	V	Benzene	BDL 5	BDL 5	BDL 5	BDL 5
205	V	Bromoform	BDL 5	BDL 5	BDL 5	BDL 5
206	V	Carbon tetrachloride	BDL 5	BDL 5	BDL 5	BDL 5
207	V	Chlorobenzene	BDL 5	BDL 5	BDL 5	BDL 5
208	V	Dibromochloromethane	BDL 5	BDL 5	BDL 5	BDL 5
209	V	Chloroethane	BDL 10	BDL 10	BDL 10	BDL 10
211	V	Chloroform	BDL 5	BDL 5	BDL 5	BDL 5
212	V	Bromodichloromethane	BDL 5	BDL 5	BDL 5	BDL 5
214	V	1,1-Dichloroethane	BDL 5	BDL 5	BDL 5	BDL 5
215	V	1,2-Dichloroethane	BDL 5	BDL 5	BDL 5	BDL 5
216	V	1,1-Dichloroethene	BDL 5	BDL 5	BDL 5	BDL 5
217	V	1,2-Dichloropropane	BDL 5	BDL 5	BDL 5	BDL 5
218	V	Cis-1,3-Dichloropropene	BDL 5	BDL 5	BDL 5	BDL 5
219	V	Ethylbenzene	BDL 5	BDL 5	BDL 5	BDL 5
220	V	Bromomethane	BDL 10	BDL 10	BDL 10	BDL 10
221	V	Chloromethane	BDL 10	BDL 10	BDL 10	BDL 10
222	V	Methylene chloride	2 J	BDL 5	BDL 5	BDL 5
223	V	1,1,2,2-Tetrachloroethane	BDL 5	BDL 5	BDL 5	BDL 5
224	V	Tetrachloroethene	BDL 5	BDL 5	BDL 5	BDL 5
225	V	Toluene	BDL 5	5	2 J	BDL 5
227	V	1,1,1-Trichloroethane	BDL 5	BDL 5	BDL 5	BDL 5
228	V	1,1,2-Trichloroethane	BDL 5	BDL 5	BDL 5	BDL 5
229	V	Trichloroethene	BDL 5	BDL 5	BDL 5	BDL 5
231	V	Vinyl chloride	BDL 10	BDL 10	BDL 10	BDL 10
250	V	Trans-1,3-Dichloropropene	BDL 5	BDL 5	BDL 5	BDL 5
251	V	Styrene	BDL 5	BDL 5	BDL 5	BDL 5
252	V	Acetone	BDL 10	BDL 10	BDL 10	BDL 10
253	V	2-Butanone	BDL 10	BDL 10	BDL 10	BDL 10
254	V	Carbon disulfide	BDL 5	BDL 5	BDL 5	BDL 5
255	V	2-Hexanone	BDL 10	BDL 10	BDL 10	BDL 10
256	V	4-Methyl-2-pentanone	BDL 10	BDL 10	BDL 10	BDL 10
257	V	Vinyl acetate	BDL 10	BDL 10	BDL 10	BDL 10
289	V	Xylenes (Total)	BDL 5	BDL 5	BDL 5	BDL 5
299	V	1,2-Dichloroethene(Total)	BDL 5	BDL 5	BDL 5	BDL 5

COLLIERVILLE SITE: PRIVATE WELL SAMPLING MAY 22 AND 23, 1990

		SITE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE	COLLIERVILLE
		SAMPLING ID	052290105	052390106	052390107	052390108
		LAB SAMPLE ID	052290105	052390106	052390107	052390108
		SAMPLING DATE	05/22/90	05/23/90	05/23/90	05/23/90
		MATRIX	WATER	WATER	WATER	WATER
CMP	CL	COMPOUND	ug/l	ug/l	ug/l	ug/l
101	M	Antimony	BDL 39	BDL 39	BDL 39	BDL 39
102	M	Arsenic	BDL 3	BDL 3	BDL 3	BDL 3
103	M	Beryllium	BDL 1	BDL 1	BDL 1	BDL 1
104	M	Cadmium	BDL 5	BDL 5	BDL 5	BDL 5
105	M	Chromium	1570	BDL 7	BDL 7	BDL 7
106	M	Copper	BDL 5	8.6 B	5.7 B	34.3
107	M	Lead	BDL 2	2.4 B	BDL 2	BDL 2
108	M	Mercury	BDL 0.2	BDL 0.2	BDL 0.2	BDL 0.2
109	M	Nickel	BDL 34	BDL 34	BDL 34	BDL 34
110	M	Selenium	BDL 10	BDL 10	BDL 10	BDL 10
111	M	Silver	BDL 4	BDL 4	BDL 4	BDL 4
112	M	Thallium	BDL 3	BDL 3	BDL 3	BDL 3
113	M	Zinc	642	82.7	354	26.6
114	M	Barium	12.9 B	14.9 B	25.3 B	18.7 B
115	M	Iron	8.2 B	132	48 B	32 B
116	M	Manganese	BDL 4	BDL 4	BDL 4	BDL 4
117	M	Vanadium	BDL 5	BDL 5	BDL 5	BDL 5
118	M	Aluminum	BDL 23	BDL 23	BDL 23	BDL 23
120	M	Cobalt	BDL 7	BDL 7	BDL 7	BDL 7
121	M	Magnesium	1360 B	1160 B	2110 B	1650 B
129	M	Calcium	3340 B	3140 B	5280	4420 B
130	M	Sodium	8410	7830	16100	8500
131	M	Potassium	BDL 3970	BDL 3970	BDL 3970	BDL 3970
203	V	Benzene	BDL 5	BDL 5	BDL 5	BDL 5
205	V	Bromoform	BDL 5	BDL 5	BDL 5	BDL 5
206	V	Carbon tetrachloride	BDL 5	BDL 5	BDL 5	BDL 5
207	V	Chlorobenzene	BDL 5	BDL 5	BDL 5	BDL 5
208	V	Dibromochloromethane	BDL 5	BDL 5	BDL 5	BDL 5
209	V	Chloroethane	BDL 10	BDL 10	BDL 10	BDL 10
211	V	Chloroform	BDL 5	BDL 5	BDL 5	BDL 5
212	V	Bromodichloromethane	BDL 5	BDL 5	BDL 5	BDL 5
214	V	1,1-Dichloroethane	BDL 5	BDL 5	BDL 5	BDL 5
215	V	1,2-Dichloroethane	BDL 5	BDL 5	BDL 5	BDL 5
216	V	1,1-Dichloroethene	BDL 5	BDL 5	BDL 5	BDL 5
217	V	1,2-Dichloropropane	BDL 5	BDL 5	BDL 5	BDL 5
218	V	Cis-1,3-Dichloropropene	BDL 5	BDL 5	BDL 5	BDL 5
219	V	Ethylbenzene	BDL 5	BDL 5	BDL 5	BDL 5
220	V	Bromomethane	BDL 10	BDL 10	BDL 10	BDL 10
221	V	Chloromethane	BDL 10	BDL 10	BDL 10	BDL 10
222	V	Methylene chloride	BDL 5	1 BJ	3 BJ	BDL 5
223	V	1,1,2,2-Tetrachloroethane	BDL 5	BDL 5	BDL 5	BDL 5
224	V	Tetrachloroethene	BDL 5	BDL 5	BDL 5	BDL 5
225	V	Toluene	BDL 5	1 J	BDL 5	BDL 5
227	V	1,1,1-Trichloroethane	BDL 5	BDL 5	BDL 5	BDL 5
228	V	1,1,2-Trichloroethane	BDL 5	BDL 5	BDL 5	BDL 5
229	V	Trichloroethene	BDL 5	BDL 5	BDL 5	BDL 5
231	V	Vinyl chloride	BDL 10	BDL 10	BDL 10	BDL 10
250	V	Trans-1,3-Dichloropropene	BDL 5	BDL 5	BDL 5	BDL 5
251	V	Styrene	BDL 5	BDL 5	BDL 5	BDL 5
252	V	Acetone	BDL 10	BDL 10	4 J	BDL 10
253	V	2-Butanone	BDL 10	BDL 10	BDL 10	BDL 10
254	V	Carbon disulfide	BDL 5	BDL 5	BDL 5	BDL 5
255	V	2-Hexanone	BDL 10	BDL 10	BDL 10	BDL 10
256	V	4-Methyl-2-pentanone	BDL 10	BDL 10	BDL 10	BDL 10
257	V	Vinyl acetate	BDL 10	BDL 10	BDL 10	BDL 10
289	V	Xylenes (Total)	BDL 5	BDL 5	BDL 5	BDL 5
299	V	1,2-Dichloroethene(Total)	BDL 5	BDL 5	BDL 5	BDL 5

		SITE	COLLIERVILLE		COLLIERVILLE	
		SAMPLING ID	052390109		052390110	
		LAB SAMPLE ID	052390109		052390110	
		SAMPLING DATE	05/23/90		05/23/90	
		MATRIX	WATER		WATER	
CMP	CL	COMPOUND	ug/kg		ug/l	
101	M	Antimony	BDL	39	BDL	39
102	M	Arsenic	BDL	3	BDL	3
103	M	Beryllium	BDL	1	BDL	1
104	M	Cadmium	BDL	5	BDL	5
105	M	Chromium	BDL	7	BDL	7
106	M	Copper	247		24.3 B	
107	M	Lead	BDL	2	2 B	
108	M	Mercury	BDL	0.2	BDL	0.2
109	M	Nickel	BDL	34	BDL	34
110	M	Selenium	BDL	2	BDL	10
111	M	Silver	BDL	4	BDL	4
112	M	Thallium	BDL	3	BDL	3
113	M	Zinc	29.8		156	
114	M	Barium	8.9 B		30.1 B	
115	M	Iron	21.5 B		41.3 B	
116	M	Manganese	BDL	4	BDL	4
117	M	Vanadium	BDL	5	BDL	5
118	M	Aluminum	24.3 B		BDL	23
120	M	Cobalt	BDL	7	BDL	7
121	M	Magnesium	770 B		3190 B	
129	M	Calcium	1960 B		8360	
130	M	Sodium	4130 B		19600	
131	M	Potassium	BDL	3970	BDL	3970
203	V	Benzene	BDL	5	BDL	5
205	V	Bromoform	BDL	5	BDL	5
206	V	Carbon tetrachloride	BDL	5	BDL	5
207	V	Chlorobenzene	BDL	5	BDL	5
208	V	Dibromochloromethane	BDL	5	BDL	5
209	V	Chloroethane	BDL	10	BDL	10
211	V	Chloroform	BDL	5	BDL	5
212	V	Bromodichloromethane	BDL	5	BDL	5
214	V	1,1-Dichloroethane	BDL	5	BDL	5
215	V	1,2-Dichloroethane	BDL	5	BDL	5
216	V	1,1-Dichloroethene	BDL	5	BDL	5
217	V	1,2-Dichloropropane	BDL	5	BDL	5
218	V	Cis-1,3-Dichloropropene	BDL	5	BDL	5
219	V	Ethylbenzene	BDL	5	BDL	5
220	V	Bromomethane	BDL	10	BDL	10
221	V	Chloromethane	BDL	10	BDL	10
222	V	Methylene chloride	BDL	5	BDL	5
223	V	1,1,2,2-Tetrachloroethane	BDL	5	BDL	5
224	V	Tetrachloroethene	BDL	5	BDL	5
225	V	Toluene	BDL	5	BDL	5
227	V	1,1,1-Trichloroethane	BDL	5	BDL	5
228	V	1,1,2-Trichloroethane	BDL	5	BDL	5
229	V	Trichloroethene	BDL	5	BDL	5
231	V	Vinyl chloride	BDL	10	BDL	10
250	V	Trans-1,3-Dichloropropene	BDL	5	BDL	5
251	V	Styrene	BDL	5	BDL	5
252	V	Acetone	BDL	10	BDL	10
253	V	2-Butanone	BDL	10	BDL	10
254	V	Carbon disulfide	BDL	5	BDL	5
255	V	2-Hexanone	BDL	10	BDL	10
256	V	4-Methyl-2-pentanone	BDL	10	BDL	10
257	V	Vinyl acetate	BDL	10	BDL	10
289	V	Xylenes (Total)	BDL	5	BDL	5
299	V	1,2-Dichloroethene(Total)	BDL	5	BDL	5

COLLIERVILLE SITE: RESULTS OF THIRD QUARTER GROUNDWATER SAMPLING EVENT: August, 1991

		SITE	COLLIERVILLE		COLLIERVILLE		COLLIERVILLE		COLLIERVILLE	
		SAMPLE ID	083091105		083091105		083091110		083091110	
		LAB SAMPLE ID	5252.7		5252.7 D		5253.5		5253.5 D	
		SAMPLING DATE	08/30/91		08/30/91		08/30/91		08/30/91	
		MATRIX	WATER		WATER		WATER		WATER	
CMPD	CL	COMPOUND	ug/l		ug/l		ug/kg		ug/kg	
101	M	Antimony	BDL	14.3	BDL	14.3	BDL	14.3	BDL	14.3
102	M	Arsenic	BDL	1.2	BDL	1.2	BDL	1.2	BDL	1.2
103	M	Beryllium	BDL	0.6	BDL	0.6	BDL	0.6	BDL	0.6
104	M	Cadmium	BDL	3.2	BDL	3.2	BDL	3.2	BDL	3.2
105	M	Chromium	710		711		BDL	3.3	5 B	
106	M	Copper	5.4 B		4.9 B		13.7 B		18 B	
107	M	Lead	1 B		1 B		11.6		8.5	
108	M	Mercury	0.76		BDL	0.2	BDL	0.2	BDL	0.2
109	M	Nickel	BDL	10	BDL	10	BDL	10	BDL	10
110	M	Selenium	BDL	0.5			BDL	0.5		
111	M	Silver	BDL	2.6	BDL	2.6	BDL	2.6	BDL	2.6
112	M	Thallium	BDL	0.6	BDL	0.6	BDL	0.6	0.6 B	
113	M	Zinc	542		213		102		258	
114	M	Barium	16.9 B		17.5 B		30.9 B		31.4 B	
115	M	Iron	95 B		74.9 B		92.3 B		142	
116	M	Manganese	2.7 B		2.7 B		2 B		2.3 B	
117	M	Vanadium	BDL	3.2	BDL	3.2	BDL	3.2	BDL	3.2
118	M	Aluminum	28.6 B		25 B		BDL	23.2	39.4 B	
120	M	Cobalt	BDL	4	BDL	4	BDL	4	BDL	4
121	M	Magnesium	1310 B		1290 B		3040 B		3060 B	
129	M	Calcium	3510 B		3470 B		8260		8300	
130	M	Sodium	9390		9240		20100		20100	
131	M	Potassium	586 B		910 B		788 B		1150 B	
203	V	Benzene	BDL	5			BDL	5		
205	V	Bromoform	BDL	5			BDL	5		
206	V	Carbon tetrachloride	BDL	5			BDL	5		
207	V	Chlorobenzene	BDL	5			BDL	5		
208	V	Dibromochloromethane	BDL	5			BDL	5		
209	V	Chloroethane	BDL	10			BDL	10		
211	V	Chloroform	BDL	5			BDL	5		
212	V	Bromodichloromethane	BDL	5			BDL	5		
214	V	1,1-Dichloroethane	BDL	5			BDL	5		
215	V	1,2-Dichloroethane	BDL	5			BDL	5		
216	V	1,1-Dichloroethene	BDL	5			BDL	5		
217	V	1,2-Dichloropropane	BDL	5			BDL	5		
218	V	Cis-1,3-Dichloropropene	BDL	5			BDL	5		
219	V	Ethylbenzene	BDL	5			BDL	5		
220	V	Bromomethane	BDL	10			BDL	10		
221	V	Chloromethane	BDL	10			BDL	10		
222	V	Methylene chloride	BDL	5			BDL	5		
223	V	1,1,2,2-Tetrachloroethane	BDL	5			BDL	5		
224	V	Tetrachloroethene	BDL	5			BDL	5		
225	V	Toluene	BDL	5			BDL	5		
227	V	1,1,1-Trichloroethane	BDL	5			BDL	5		
228	V	1,1,2-Trichloroethane	BDL	5			BDL	5		
229	V	Trichloroethene	BDL	5			BDL	5		
231	V	Vinyl chloride	BDL	10			BDL	10		
250	V	Trans-1,3-Dichloropropene	BDL	5			BDL	5		
251	V	Styrene	BDL	5			BDL	5		
252	V	Acetone	BDL	10			BDL	10		
253	V	2-Butanone	BDL	10			BDL	10		
254	V	Carbon disulfide	BDL	5			BDL	5		
255	V	2-Hexanone	BDL	10			BDL	10		
256	V	4-Methyl-2-pentanone	BDL	10			BDL	10		
257	V	Vinyl acetate	BDL	10			BDL	10		
289	V	Xylenes (Total)	BDL	5			BDL	5		
299	V	1,2-Dichloroethene(Total)	BDL	5			BDL	5		

APPENDIX P

RISK ASSESSMENT CALCULATIONS

CALCULATION OF SURFACE SOIL VOLATILES MEANS

	TCE	DCE
SAMPLES:	108	35
HITS:	44	3
ΣX:	1.59E6	232
MEAN:	34580	77.3
ΣX_2	1.506268_E12	40520
$(\Sigma X)_2$	2.5281E12	53824
$f=$	43	2
STD.DEV.	183,560	110

- Outlier (4-0 & 38-1)

		Factors	
STD. ERROR	± 27,700 (1,400)	63.5	4.3

		Known	Unknown
95% Upper ±	Z,-oc/2 @95% = 1.96	2.00	
U.L. ± 54,000	±127		
MEAN 89,000	338		

	PLANT AREA	LAGOON AREA
Estimated Acreage in upper 5' TCE ÷/or DCE Contamination	25 Acres	18 Acres (23% Total)
% of these area paved	≥ 60%	0%
Exposed surface (0-5') contamination	≤ 10 Acres	18 Acres

TOTAL ≅ 30 Acres (16%) Total Area

→ Invasive activities would alter conclusion and special precautions should be taken should sewer/H_2O line or other under ground utility maintenance be required. These activities would be of short duration and PPE and air monitoring should be prescribed under these circumstances.

→ Assume normal distribution about the mean.

→ 6^2 Unknown screening

→ Uses pre-RI data as outlined in Section 4.

SURFACE SOIL TCE/DCE CONCENTRATIONS
CLP & 8240 SCREENING

	TCE		TCE		TCE	DCE		TCE	DCE
* B1-0	<.5	B22-1	7	MW21-1	<.5		B37-1	<6	<6
1-1	6	B23-0	<.5	MW23-0	<.5		B38-1	1.2 E6	200
* 2-0	14	23-1	<.5	MW23-1	<.5		B39-1	30	18
2-1	127	24-0	<.5				B40-1	6J	14
* 3-0	17	24-1	<.5	B41-1	<10	<10	Σx 1200036		
* 4-0	250,000	25-0	<.5	42-1	<10		Σx^2 = 1.44 ← 12 Total		
4-1	750	25-1	<.5	43-1	10		Σx^2 = 1.506268E12		
* 5-1	87	26-0	260	44-1	20				
* 6-0	<.5	26-1	300	45-1	<10		# Samples =	TCE 108	DCE 35
6-1	<.5	27-0	7	46-1	50				
* 7-0	3	27-1	2	47-1	<10				
7-1	20	28-0	<.5	48-1	<10				
* 8-0	10	28-1	<.5	49-1	<10				
8-1	14	29-0	5,800	MW27-1	<10				
* 9-0	48,000	29-1	4,000	29-1	<10		#Hits	TCE 44	DCE 3
9-1	22,000	32-0	24	31-1	<10		Ave.1	34580	77.3
10-0	3	32-1	26	33-1	<10				
10-1	4	33-0	<.5	35-1	<10				
* 11-0	<.5	33-1	<.5	37-1	10				
11-1	<.5	34-0	13	39-1	10				
* 12-0	<.5	34-1	8	41-1	<10				
12-1	2	35-0	230	43-1	<10				
* 13-0	<.5	35-1	100	45-1	<10				

SURFACE SOIL TCE/DCE CONCENTRATIONS CLP & 8240 SCREENING								
	TCE		TCE		TCE	DCE		TCE DCE
13-1	<.5	36-0	<.5	47-1	<10			
* 14-0	<.5	36-1	<.5	49-1	<10			
14-1	0.9	MW3-1	<.5	51-1	< 1			
*16.0	<.5	9-1	<.5	53-1	< 5 < 5			
16-1	<.5	11-1	<.5	55-1	< 1			
17-0	15,000	15-0	1	57-1	< 1			
18-1	16,000	15-1	<.5	58-1	< 1			
19-1	840	17-0	<.5	59-1	< 1			
20-0	3	17-1	<.5	61-1	< 1			
21-0	6,900	19-0	<.5	B51-1	< 1			
21-1	20,000	19-1	<.5	B53-1	< 1			
22-0	3	21-0	<.5					
Σx 379803.9 11		Σx 10778 21		Σx 100 29				
Σx² 6.6218E10		Σx² 49862088		Σx² 3200				

Notes:
Data from CLP results (all phases) plus initial Phase I screening (Method 8240) data.

CALCULATION OF SURFACE SOIL METAL MEANS METALS DATA (UPPER 5')		
	Pb	Zn
B37-1	11.0	20.2
B38-1	15.8	72.2
B39-1	11.9	77.8
B40-1	7.	33.9
B45-1	13.8	39.8
B48-1	11.3	61.7
Σ:	70.8	305.6
Mean:	11.8	50.9
Std. Sev.	2.96	23.0
Std. Error:	1.21	9.40
95%	± 3.11	± 24.2
	14.9	75.1
$t = 2.571\ S_2$		

APPENDIX P
Groundwater RME Determinations

Memphis Sand Aquifer Data Used to Compute RMEs for Future Site Resient Groundwater Pathway (all values in ug/L)					
Well	Sample Period	TCE	1,2-DCE	Lead	Zinc
1	4/91	967.8	114.4	25.4*	22
	8/91	1400	170	50.6	90
	11/91	646	164	ND	ND
	Mean	1004.6	149.5	38	56
1B	4/91	920.7	257	102	5360
	8/91	1800	370	82	5380
	11/91	650	269.4	ND	ND
	MEAN	1123.6	298.8	92	5370
4	4/91	2.5*	2.5*	109	7130
	8/91	57	2.5*	0.5*	22500
	11/91	5	2.5*	ND	ND
	MEAN	21.5	2.5	55	14815
6	4/91	2.5*	2.5*	25.3*	2570
	8/91	12.5	2.5*	94	5140
	11/91	8.0	2.5*	ND	ND
	MEAN	7.6	2.5	60	3860
10	4/91	2.5*	2.5*	25.3*	34
	8/91	5	2.5*	11.6	102
	11/91	9	2.5*	87	45
	MEAN	5.5	2.5	41.3	60.3
12	4/91	2.5*	2.5*	25.3*	291
	8/91	2.5*	2.5*	25.3*	95
	11/91	2.5*	2.5*	ND	ND
	MEAN	2.5	2.5	25.3	193
14	4/91	2.5*	2.5*	25.3*	9
	8/91	5	2.5*	25.3*	78
	11/91	2	2.5*	ND	ND
	MEAN	3.2	2.5	25.3	43.5
16	4/91	2.5*	2.5*	83.0	4690
	8/91	2.5*	2.5*	25.3*	4980
	11/91	2.5*	2.5*	ND	ND
	MEAN	2.5	2.5	54.2	4835
58	4/91	—	—	—	—
	8/91	2.5*	2.5*	0.25*	113
	11/91	2.5*	2.5*	ND	ND
	MEAN	2.5	2.5	0.25	113
	Sum of Means	2173.5	465.8	391.35	29345.8
	Sum of Means^2	2272277.4	111675.4	22456.6	286656632
	s.d.	467.4	104.6	26	4885.8
	Mean of Location Means	241.5	51.76	43.5	3260.6
	95% Upper Conf. Limit Mean of Mean Values	531	117	60	6300

APPENDIX P
Groundwater RME Determinations

Collierville Municipal Well Data used to Compute RMEs for Current Resident Groundwater Pathway (all values in ug/L)					
Well	Sample Period	TCE	DCE	Lead	Zinc
CW-1	4/91 8/91 11/91	5.0 20 11	BDL BDL BDL	28.2 27 ND	3350 6680 ND
CW-2	4/91 8/91 11/91	290 103 79	BDL BDL BDL	42 45 ND	1390 1290 ND
	RME = Highest Observed Conc.	290	---	45	6680

Notes for Current and Future RME tables:

ND = No Data Available
NA & --- = Not Applicable
* = one half the sample quantitation limit; this value was used for below detection limit values for TCE, DCE, lead, and zinc. It was not applied to DCA, vinyl chloride or PCE as these compounds were not identified in any sample from the Memphis Sand wells.

- VOA data produced by CLP-TCL and SW-846 (Methods 8240 & 8010) analytical methods
- metals data produced by CLP-TAL and ICP analytical methods; the metals data set for 11/91 was incomplete. Therefore, these data points wer not used to compute RMEs.
- the maximum concentration of each detected compound was used to compute current exposure concentrations because the limited number of data points provided only one degree of freedom.

Background Well Metals Concentration Assessment			
Well	Sample Period	Lead Concentration	Zinc Concentration
CMW-001	8/91 11/91	26.2 22.6	3350 3560
CMW-002	8/91 11/91	42 63.5	1390 111
95% upper confidence limit mean		61 ug/L	4040 ug/L

APPENDIX Q

0277
Lead and compounds (inorganic); CASRN 7439-92-1 (04/01/91)

Health risk assessment information on a chemical is included in IRIS only after a comprehensive review of chronic toxicity data by work groups composed of U.S. EPA scientists from several Program Offices. The summaries presented in Sections I and II represent a consensus reached in the review process. The other sections contain U.S. EPA information which is specific to a particular EPA program and has been subject to review procedures prescribed by that Program Office. The regulatory actions in Section IV may not be based on the most current risk assessment, or may be based on a current, but unreviewed, risk assessment, and may take into account factors other than health effects (e.g., treatment technology). When considering the use of regulatory action data for a particular situation, note the date of the regulatory action, the date of the most recent risk assessment relating to that action, and whether technological factors were considered. Background information and explanations of the methods used to derive the values given in IRIS are provided in the five Background Documents in Service Code 5, which correspond to Sections I through V of the chemical files.

STATUS OF DATA FOR Lead and compounds (inorganic)

File On-Line 03/01/88

Category (section)	Status	Last Revised
Oral RfD Assessment (I.A.)	on-line	02/01/91
Inhalation RfC Assessment (I.B.)	no data	
Carcinogenicity Assessment (II.)	on-line	12/01/89

Drinking Water Health Advisories (III.A.) no data

U.S. EPA Regulatory Actions (IV.) on-line
07/01/90

Supplementary Data (V.) no data

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I. CHRONIC HEALTH HAZARD ASSESSMENTS FOR NONCARCINOGENIC EFFECTS

I.A. REFERENCE DOSE FOR CHRONIC ORAL EXPOSURE (RfD)

Substance Name -- Lead and compounds (inorganic)
CASRN -- 7439-92-1
Last Revised -- 02/01/91

The Reference Dose (RfD) is based on the assumption that thresholds exist for certain toxic effects such as cellular necrosis, but may not exist for other toxic effects such as carcinogenicity. In general, the RfD is an estimate (with uncertainty spanning perhaps an order of magnitude) of a daily exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime. Please refer to Background Document 1 in Service Code 5 for an elaboration of these concepts. RfDs can also be derived for the noncarcinogenic health effects of compounds which are also carcinogens. Therefore, it is essential to refer to other sources of information concerning the carcinogenicity of this substance. If the U.S. EPA has evaluated this substance for potential human carcinogenicity, a summary of that evaluation will be contained in Section II of this file when a review of that evaluation is completed.

A great deal of information on the health effects of lead has been obtained through decades of medical observation and scientific research. This

information has been assessed in the development of air and water quality criteria by the Agency's Office of Health and Environmental Assessment (OHEA) in support of regulatory decision-making by the Office of Air Quality Planning and Standards (OAQPS) and by the Office of Drinking Water (ODW). By comparison to most other environmental toxicants, the degree of uncertainty about the health effects of lead is quite low. It appears that some of these effects, particularly changes in the levels of certain blood enzymes and in aspects of children's neurobehavioral development, may occur at blood lead levels so low as to be essentially without a threshold. The Agency's RfD Work Group discussed inorganic lead (and lead compounds) at two meetings (07/08/85 and 07/22/85) and considered it inappropriate to develop an RfD for inorganic lead. For additional information, interested parties are referred to the 1986 Air Quality Criteria for Lead (EPA-600/8-83/028a-dF) and its 1990 Supplement (EPA/600/8-89/049F) or the following Agency scientists:

Harlal Choudhury / ORD -- (513)569-7536 / FTS 684-7536

J. Michael Davis / ORD -- (919)541-4162 / FTS 629-4162

Jeff Cohen / ODW -- (202)382-5456 / FTS 382-5456

John Haines / OAQPS -- (919)541-5533 / FTS 629-5533

__I.B. REFERENCE CONCENTRATION FOR CHRONIC INHALATION EXPOSURE (RfC)

Substance Name -- Lead and compounds (inorganic)
CASRN -- 7439-92-1

Not available at this time.

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_II. CARCINOGENICITY ASSESSMENT FOR LIFETIME EXPOSURE

Substance Name -- Lead and compounds (inorganic)
CASRN -- 7439-92-1
Last Revised -- 12/01/89

Section II provides information on three aspects of the carcinogenic risk assessment for the agent in question; the U.S. EPA classification, and quantitative estimates of risk from oral exposure and from inhalation exposure. The classification reflects a weight-of-evidence judgment of the likelihood that the agent is a human carcinogen. The quantitative risk estimates are presented in three ways. The slope factor is the result of application of a low-dose extrapolation procedure and is presented as the risk per (mg/kg)/day. The unit risk is the quantitative estimate in terms of either risk per ug/L drinking water or risk per ug/cu.m air breathed. The third form in which risk is presented is a drinking water or air concentration providing cancer risks of 1 in 10,000, 1 in 100,000 or 1 in 1,000,000. Background Document 2 (Service Code 5) provides details on the rationale and methods used to derive the carcinogenicity values found in IRIS. Users are referred to Section I for information on long-term toxic effects other than carcinogenicity.

__II.A. EVIDENCE FOR CLASSIFICATION AS TO HUMAN CARCINOGENICITY

___II.A.1. WEIGHT-OF-EVIDENCE CLASSIFICATION

Classification -- B2; probable human carcinogen

Basis -- Sufficient animal evidence. Ten rat bioassays and one mouse assay have shown statistically significant increases in renal tumors with dietary and subcutaneous exposure to several soluble lead salts. Animal assays provide reproducible results in several laboratories, in multiple rat

strains with some evidence of multiple tumor sites. Short term studies show that lead affects gene expression. Human evidence is inadequate.

___II.A.2. HUMAN CARCINOGENICITY DATA

Inadequate. There are four epidemiologic studies in occupational cohorts exposed to lead and lead compounds. Two studies (Dingwall-Fordyce and Lane 1963, Nelson et al., 1982) did not find any association between exposure to lead and cancer mortality. Selevan et al. (1985) in their retrospective cohort mortality study of primary lead smelter workers found a slight decrease in the total cancer mortality (SMR=95). Apparent excesses were observed for respiratory cancer (SMR=111, obs=41, p>0.05) and kidney cancer (SMR=204, obs=6, p>0.05). Cooper and Gaffey (1975) and Cooper (1985 update) in their cohort mortality study of battery plant workers and lead smelter workers found statistically significant excesses for total cancer mortality (SMR=113, obs=344), stomach cancer (SMR=168, obs=34) and lung cancer (SMR=124, obs=109) in battery plant workers. Although similar excesses were observed in smelter workers, they were not statistically significant. Cooper and Gaffey (1975) felt it was possible that individual subjects were monitored primarily on the basis of obvious signs of lead exposure, while others who show no symptoms of lead poisoning would not be monitored.

All of the available studies lacked quantitative exposure information, as well as information on the possible contribution of smoking. All studies also had exposures to other metals such as arsenic, cadmium and zinc for which no adjustment was done. The cancer excesses observed in the lung and stomach were relatively small (<200). There was no consistency of site among the various studies, and no study showed any dose-response relationship. Thus,

the available human evidence is considered to be inadequate to refute or demonstrate potential carcinogenicity for humans from lead exposure.

___II.A.3. ANIMAL CARCINOGENICITY DATA

Sufficient. The carcinogenic potential of lead salts, primarily phosphates and acetates, administered by the oral route, diet or by injection has been demonstrated in rats and mice by more than 10 investigators. The most characteristic cancer response is bilateral renal carcinoma. Rats given lead acetate or subacetate orally have developed gliomas, and lead subacetate also produced lung adenomas in mice after i.p. adminstration. Most of these investigations found a carcinogenic response only at the highest dose. The lead compounds tested in animals are almost all soluble salts. Metallic lead, lead oxide and lead tetralkyls have not been tested adequately. Studies with inhalation exposure have not been located in the literature.

Azar et al. (1973) administerd 10, 50, 100, and 500 ppm lead as lead acetate in dietary concentrations to fifty rats/sex/treatment group for 2 years. One hundred control rats of each sex received the basal laboratory diet. In a second 2-year feeding study, 20 rats/group were given diets containing 0, 1000, and 2000 ppm lead as lead acetate. No renal tumors were reported in the control groups or in treated animals of either sex receiving 10 to 100 ppm. Male rats fed 500, 1000, and 2000 ppm lead acetate had an increased renal tumor incidence of 5/50, 10/20, and 16/20, while 7/20 females in the 2000 ppm developed renal tumors.

The Azar et al. (1973) study is limited by the lack of experimental detail. The possibility of environmental contamination from lead in the air or drinking water was not mentioned. The strains of rats used were not

specified in the study, but the Health Effects Assessment for Lead (U.S. EPA, 1984) indicated the rats were Wistar strain. The weight gain at 1000 and 2000 ppm was reported to be depressed, but details were not given.

Kasprzak et al. (1985), in investigating the interaction of dietary calcium on lead carcinogenicity, fed a diet with 1% lead subacetate (8500 ppm Pb) to male Sprague-Dawley rats for 79 weeks. Of the rats surviving (29/30) in this treatment group beyond 58 weeks, 44.8% had renal tumors. Four rats had adenocarcinomas; the remainaing nine had adenomas. Bilateral tumors were noted. No renal tumors were noted among the controls.

As part of a study to determine interactions between sodium nitrite, ethyl urea and lead, male Sprague-Dawley rats were given lead acetate in their drinking water for 76 weeks (Koller et al., 1986). The concentration of lead was 2600 ppm. No kidney tumors were detected among the 10 control rats. Thirteen of 16 (81%) lead-treated rats had renal tubular carcinoma, with three tumors detected at 72 weeks and the remainder detected at the termination of the study.

Van Esch and Kroes (1969) fed basic lead acetate at 0, 0.1%, and 1.0% in the diet to 25 Swiss mice/sex/treatment group for 2 years. No renal tumors developed in the control group, but 6/25 male mice of 0.1% basic lead acetate group had renal tumors (adenomas and carcinomas combined). In the 1.0% group, one female had a renal tumor. The authors felt that the low incidence in the 1.0% group was due to early mortality.

Hamsters given lead subacetate at 0.5% and 1% in the diet had no significant renal tumor response (Van Esch and Kroes, 1969).

___II.A.4. SUPPORTING DATA FOR CARCINOGENICITY

Lead acetate induces cell transformation in Syrian hamster embryo cells (DiPaolo et al., 1978) as well as enhances the incidence of simian adenovirus induction. Lead oxide showed similar enhanced adenovirus induction (Casto et al., 1979).

Under certain conditions lead compounds are capable of inducing chromosomal aberrations in vivo and in tissue cultures. Grandjean et al. (1983) showed a relationship between SCE and lead exposure in exposed workers. Lead has been shown, in a number of DNA structure and function assays, to affect the molecular processes associated with the regulation of gene expression (U.S. EPA, 1986).

__II.B. QUANTITATIVE ESTIMATE OF CARCINOGENIC RISK FROM ORAL EXPOSURE

Not available.

Quantifying lead's cancer risk involves many uncertainties, some of which may be unique to lead. Age, health, nutritional state, body burden, and exposure duration influence the absorption, release, and excretion of lead. It is also felt that current knowledge of lead pharmacokinetics indicates that an estimate derived by standard procedures would not truly describe the potential risk. Thus, the Carcinogen Assessment Group recommends that a numerical estimate not be used.

__II.C. QUANTITATIVE ESTIMATE OF CARCINOGENIC RISK FROM INHALATION EXPOSURE

Not available.

II.D. EPA DOCUMENTATION, REVIEW, AND CONTACTS (CARCINOGENICITY ASSESSMENT)

II.D.1. EPA DOCUMENTATION

U.S. EPA. 1984. Health Effects Assessment for Lead. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH, for the Office of Emergency and Remedial Response, Washington, DC. EPA/540/1-86/055. NTIS PB85-163996/AS.

U.S. EPA. 1986. Air Quality Criteria Document for Lead. Volumes III, IV. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Research Triangle Park, NC, for the Office of Air Quality Planning and Standards. EPA-600/8-83/028dF.

U.S. EPA. 1987. Preliminary review of the carcinogenic potential of lead associated with oral exposure. Prepared by the Office of Health and Environmental Assessment, Carcinogenic Assessment Group, Washington DC, for the Office of Drinking Water, Office of Solid Waste and the Office of Emergency and Remedial Response (Superfund). OHEA-C-267. Internal Review Draft.

II.D.2. REVIEW (CARCINOGENICITY ASSESSMENT)

The review of the carcinogenic potential of lead associated with oral exposure has received Agency review.

The 1986 Air Quality Criteria Document for Lead has received Agency and External Review.

Agency Work Group Review: 05/04/88

Verification Date: 05/04/88

___II.D.3. U.S. EPA CONTACTS (CARCINOGENICITY ASSESSMENT)

William Pepelko / ORD -- (202)382-5898 / FTS 382-5898

James Cogliano / ORD -- (202)382-5898 / FTS 382-5898

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_III. HEALTH HAZARD ASSESSMENTS FOR VARIED EXPOSURE DURATIONS

__III.A. DRINKING WATER HEALTH ADVISORIES

Substance Name -- Lead and compounds (inorganic)
CASRN -- 7439-92-1

Not available at this time.

__III.B. OTHER ASSESSMENTS

Substance Name -- Lead and compounds (inorganic)
CASRN -- 7439-92-1

Content to be determined.

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_IV. U.S. EPA REGULATORY ACTIONS

Substance Name -- Lead and compounds (inorganic)
CASRN -- 7439-92-1
Last Revised -- 07/01/90

EPA risk assessments may be updated as new data are published and as

___IV.B.1. MAXIMUM CONTAMINANT LEVEL GOAL (MCLG) for Drinking Water

Value (status) -- 0.02 mg/L (Proposed, 1985)

Considers technological or economic feasibility? -- NO

Discussion -- Neurological effects of lead in infants and adverse effects
associated with blood lead levels of 15 ug/dL are the basis for this MCLG.
Using a conversion factor of 6.25 to convert from blood lead concentrations
to drinking water lead concentrations and an uncertainty factor of 5, an MCLG
of 0.02 mg/L for lead was derived.

Reference -- 50 FR 46936 Part IV (11/13/85)

EPA Contact -- Criteria and Standards Division, ODW / (202)382-7571 / FTS 382-7571; or Drinking Water Hotline / (800)426-4791

___IV.B.2. MAXIMUM CONTAMINANT LEVEL (MCL) for Drinking Water

Value (status) -- 0.05 mg/L (Interim, 1980)

Considers technological or economic feasibility? -- YES

Discussion -- As an interim measure the U.S. EPA is using the value
previously derived by the Public Health Service.

Reference -- 45 FR 57332 (08/27/80)

EPA Contact -- Criteria and Standards Division, ODW / (202)382-7571 / FTS 382-7571; or Drinking Water Hotline / (800)426-4791

__IV.C. CLEAN WATER ACT (CWA)

__ IV.C.1. AMBIENT WATER QUALITY CRITERIA, Human Health

Water and Fish Consumption -- 5.0E+1 ug/L

Fish Consumption Only -- None

Considers technological or economic feasibility? -- NO

Discussion -- The criterion was set at the existing drinking water standard
in 1980.

Reference -- 45 FR 79318 (11/28/80)

EPA Contact -- Criteria and Standards Division, OWRS
(202)475-7315 / FTS 475-7315

___IV.C.2. AMBIENT WATER QUALITY CRITERIA, Aquatic Organisms

Freshwater:

Acute -- 8.2E+1 ug/L (1-hour average)
Chronic -- 3.2E+0 ug/L (4-day average)

Marine:

Acute -- 1.40E+2 ug/L (1-hour average)
Chronic -- 5.6E+0 ug/L (4-day average)

Considers technological or economic feasibility? -- NO

Discussion -- The toxicity of this compound in freshwater is hardness
dependent. The values given are for a hardness of 100 mg/L $CaCO_3$. For a more
complete discussion, see the referenced notice.

Reference -- 50 FR 30784 (07/29/85)

EPA Contact -- Criteria and Standards Division, OWRS
(202)475-7315 / FTS 475-7315

__IV.D. FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT (FIFRA)

No data available

__IV.E. TOXIC SUBSTANCES CONTROL ACT (TSCA)

No data available

IV.F. RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)

__IV.F.1. RCRA APPENDIX IX, for Ground Water Monitoring

Status -- Listed

Reference -- 52 FR 25942 (07/09/87)

EPA Contact -- RCRA/Superfund Hotline
(800)424-9346 / (202)382-3000 / FTS 382-3000

__IV.G. SUPERFUND (CERCLA)

___IV.G.1. REPORTABLE QUANTITY (RQ) for Release into the Environment

Value (status) -- 1 pound (Statutory, 1987)

Considers technological or economic feasibility? -- NO

Discussion -- The statutory 1-pound RQ for lead is retained pending
assessment of its potential carcinogenicity and may be adjusted in a future
notice of proposed rulemaking when the evaluation of available data is
completed. Lead was evaluated for chronic toxicity, but was not ranked for
toxicity because of insufficient data.

Reference -- 52 FR 8140 (03/16/87)

EPA Contact -- RCRA/Superfund Hotline
(800)424-9346 / (202)382-3000 / FTS 382-3000

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V. SUPPLEMENTARY DATA

Substance Name -- Lead and compounds (inorganic)
CASRN -- 7439-92-1

Not available at this time.

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VI. BIBLIOGRAPHY

Substance Name -- Lead and compounds (inorganic)
CASRN -- 7439-92-1
Last Revised -- 12/01/89

VI.A. ORAL RfD REFERENCES

None

VI.B. INHALATION RfD REFERENCES

None

VI.C. CARCINOGENICITY ASSESSMENT REFERENCES

Anderson, E.L., and CAG (Carcinogenic Assessment Group). 1983. Quantitative approaches in use to assess cancer risk. Risk Analysis. 3: 277-295.

Azar, A., H.J. Trochimowicz and M.E. Maxfield. 1973. Review of lead studies in animals carried out at Haskell Laboratory - Two year feeding study and response to hemorrhage study. In: Barth D., A. Berlin, R. Engel, P. Recht and J. Smeets, eds. Environmental health aspects of lead: proceedings international symposium; October 1972; Amsterdam, The Netherlands. Luxemberg: Commission of the European Communities, pp. 199-208.

Casto, B.C., J. Meyers and J.A. DiPaolo. 1979. Enhancement of viral transformation for evaluation of the carcinogenic or mutagenic potential of inorganic metal salts. Cancer Res. 39: 193-198.

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VI.D. DRINKING WATER HA REFERENCES

None

0193
1,1,2,2-Tetrachloroethane; CASRN 79-34-5 (04/01/91)

Health risk assessment information on a chemical is included in IRIS only after a comprehensive review of chronic toxicity data by work groups composed of U.S. EPA scientists from several Program Offices. The summaries presented in Sections I and II represent a consensus reached in the review process. The other sections contain U.S. EPA information which is specific to a particular EPA program and has been subject to review procedures prescribed by that Program Office. The regulatory actions in Section IV may not be based on the most current risk assessment, or may be based on a current, but unreviewed, risk assessment, and may take into account factors other than health effects (e.g., treatment technology). When considering the use of regulatory action data for a particular situation, note the date of the regulatory action, the date of the most recent risk assessment relating to that action, and whether technological factors were considered. Background information and explanations of the methods used to derive the values given in IRIS are provided in the five Background Documents in Service Code 5, which correspond to Sections I through V of the chemical files.

STATUS OF DATA FOR 1,1,2,2-Tetrachloroethane

File On-Line 03/31/87

Category (section)	Status	Last Revised
Oral RfD Assessment (I.A.)	pending	
Inhalation RfC Assessment (I.B.)	no data	
Carcinogenicity Assessment (II.)	on-line	01/01/91
Drinking Water Health Advisories (III.A.)	no data	

ug/L, since above this concentration the unit risk may not be appropriate.

___II.B.4. DISCUSSION OF CONFIDENCE (CARCINOGENICITY, ORAL EXPOSURE)

An adequate number of animals was treated. Malignancies increased as a function of treatment dose, and their incidence was significantly increased at both doses.

__II.C. QUANTITATIVE ESTIMATE OF CARCINOGENIC RISK FROM INHALATION EXPOSURE

___II.C.1. SUMMARY OF RISK ESTIMATES

Inhalation Unit Risk -- 5.8E-5 per (ug/cu.m)

Extrapolation Method -- Linearized multistage procedure, extra risk

Air Concentrations at Specified Risk Levels:

Risk Level	Concentration
E-4 (1 in 10,000)	2E+0 ug/cu.m
E-5 (1 in 100,000)	2E-1 ug/cu.m
E-6 (1 in 1,000,000)	2E-2 ug/cu.m

___II.C.2. DOSE-RESPONSE DATA FOR CARCINOGENICITY, INHALATION EXPOSURE

The inhalation risk estimates were calculated from the oral exposure data in II.B.2.

___II.C.3. ADDITIONAL COMMENTS (CARCINOGENICITY, INHALATION EXPOSURE)

U.S. EPA Regulatory Actions (IV.) on-line
03/01/88

Supplementary Data (V.) no data

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_I. CHRONIC HEALTH HAZARD ASSESSMENTS FOR NONCARCINOGENIC EFFECTS

__I.A. REFERENCE DOSE FOR CHRONIC ORAL EXPOSURE (RfD)

Substance Name -- 1,1,2,2-Tetrachloroethane
CASRN -- 79-34-5

A risk assessment for this substance/agent is under review by an EPA work
group.

__I.B. REFERENCE CONCENTRATION FOR CHRONIC INHALATION EXPOSURE (RfC)

Substance Name -- 1,1,2,2-Tetrachloroethane
CASRN -- 79-34-5

Not available at this time.

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_II. CARCINOGENICITY ASSESSMENT FOR LIFETIME EXPOSURE

Substance Name -- 1,1,2,2-Tetrachloroethane
CASRN -- 79-34-5
Last Revised -- 01/01/91

Section II provides information on three aspects of the carcinogenic risk

Extrapolation Method -- Linearized multistage procedure, extra risk

Drinking Water Concentrations at Specified Risk Levels:

Risk Level	Concentration
E-4 (1 in 10,000)	2E+1 ug/L
E-5 (1 in 100,000)	2E+0 ug/L
E-6 (1 in 1,000,000)	2E-1 ug/L

___II.B.2. DOSE-RESPONSE DATA (CARCINOGENICITY, ORAL EXPOSURE)

Species/Strain Tumor Reference Tumor Type	Dose Administered	Human Equivalent	Tumor Incidence
Mouse/B6C3F1, NCI, 1978 female; hepatocellular carcinoma	Route: Oral, gavage		
	mg/kg/day	mg/kg/day	
	0	0	0/20
	87	6.56	30/48
	174	13.12	43/47

___II.B.3. ADDITIONAL COMMENTS (CARCINOGENICITY, ORAL EXPOSURE)

Administered doses are TWAs, adjusted for frequency (5/7 days) and length of exposure (546 days of an assumed lifespan of 637). Control group received vehicle (corn oil) by stomach tube. Weight of animals was assumed to be 0.030 kg. Human equivalent dose was adjusted by (0.03/70)**1/3 for body weight.

The unit risk should not be used if the water concentration exceeds 2E+3

0199
Trichloroethylene; CASRN 79-01-6 (04/01/91)

Health risk assessment information on a chemical is included in IRIS only after a comprehensive review of chronic toxicity data by work groups composed of U.S. EPA scientists from several Program Offices. The summaries presented in Sections I and II represent a consensus reached in the review process. The other sections contain U.S. EPA information which is specific to a particular EPA program and has been subject to review procedures prescribed by that Program Office. The regulatory actions in Section IV may not be based on the most current risk assessment, or may be based on a current, but unreviewed, risk assessment, and may take into account factors other than health effects (e.g., treatment technology). When considering the use of regulatory action data for a particular situation, note the date of the regulatory action, the date of the most recent risk assessment relating to that action, and whether technological factors were considered. Background information and explanations of the methods used to derive the values given in IRIS are provided in the five Background Documents in Service Code 5, which correspond to Sections I through V of the chemical files.

STATUS OF DATA FOR Trichloroethylene

File On-Line 03/31/87

Category (section)	Status	Last Revised
Oral RfD Assessment (I.A.)	pending	
Inhalation RfC Assessment (I.B.)	pending	
Carcinogenicity Assessment (II.)	withdrawn	07/01/89
Drinking Water Health Advisories (III.A.)	no data	

(919)541-5571 / FTS 629-5571

__IV.B. SAFE DRINKING WATER ACT (SDWA)

___IV.B.1. MAXIMUM CONTAMINANT LEVEL GOAL (MCLG) for Drinking Water

Value (status) -- 0 mg/L (Proposed, 1985)

Considers technological or economic feasibility? -- NO

Discussion -- An MCLG of 0 mg/L for trichloroethylene is proposed based on carcinogenic effects. Significant increases in the incidence of liver tumors have been reported in B6C3F1 mice of both sexes. Malignant lymphomas and pulmonary adenocarcinomas were also reported in mice. EPA has classified trichloroethylene in Group B2: sufficient evidence in animals and inadequate evidence in humans.

Reference -- 50 FR 46880 Part III (11/13/85)

EPA Contact -- Criteria and Standards Division, ODW / (202)382-7571 / FTS 382-7571; or Drinking Water Hotline / (800)426-4791

___IV.B.2. MAXIMUM CONTAMINANT LEVEL (MCL) for Drinking Water

Value (status) -- 5 ug/L (Final, 1987)

Considers technological or economic feasibility? -- YES

Discussion --

Reference -- 52 FR 35690

EPA Contact -- Criteria and Standards Division, ODW / (202)382-7571 / FTS 382-7571; or Drinking Water Hotline / (800)426-4791

U.S. EPA Regulatory Actions (IV.) on-line
06/01/90

Supplementary Data (V.) no data

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_I. CHRONIC HEALTH HAZARD ASSESSMENTS FOR NONCARCINOGENIC EFFECTS

__I.A. REFERENCE DOSE FOR CHRONIC ORAL EXPOSURE (RfD)

Substance Name -- Trichloroethylene
CASRN -- 79-01-6

A risk assessment for this substance/agent is under review by an EPA work
group.

__I.B. REFERENCE CONCENTRATION FOR CHRONIC INHALATION EXPOSURE (RfC)

Substance Name -- Trichloroethylene
CASRN -- 79-01-6

A risk assessment for this substance/agent is under review by an EPA work
group.

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_II. CARCINOGENICITY ASSESSMENT FOR LIFETIME EXPOSURE

Substance Name -- Trichloroethylene
CASRN -- 79-01-6

The carcinogen assessment summary for this substance has been withdrawn

0149
1,2-Dichloroethane; CASRN 107-06-2 (04/01/91)

Health risk assessment information on a chemical is included in IRIS only after a comprehensive review of chronic toxicity data by work groups composed of U.S. EPA scientists from several Program Offices. The summaries presented in Sections I and II represent a consensus reached in the review process. The other sections contain U.S. EPA information which is specific to a particular EPA program and has been subject to review procedures prescribed by that Program Office. The regulatory actions in Section IV may not be based on the most current risk assessment, or may be based on a current, but unreviewed, risk assessment, and may take into account factors other than health effects (e.g., treatment technology). When considering the use of regulatory action data for a particular situation, note the date of the regulatory action, the date of the most recent risk assessment relating to that action, and whether technological factors were considered. Background information and explanations of the methods used to derive the values given in IRIS are provided in the five Background Documents in Service Code 5, which correspond to Sections I through V of the chemical files.

STATUS OF DATA FOR 1,2-Dichloroethane

File On-Line 03/31/87

Category (section)	Status	Last Revised
Oral RfD Assessment (I.A.)	no data	
Inhalation RfC Assessment (I.B.)	no data	
Carcinogenicity Assessment (II.)	on-line	01/01/91

Drinking Water Health Advisories (III.A.) on-line
03/01/88

U.S. EPA Regulatory Actions (IV.) on-line
06/01/90

Supplementary Data (V.) no data

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_I. CHRONIC HEALTH HAZARD ASSESSMENTS FOR NONCARCINOGENIC EFFECTS

__I.A. REFERENCE DOSE FOR CHRONIC ORAL EXPOSURE (RfD)

Substance Name -- 1,2-Dichloroethane
CASRN -- 107-06-2

Not available at this time.

__I.B. REFERENCE CONCENTRATION FOR CHRONIC INHALATION EXPOSURE (RfC)

Substance Name -- 1,2-Dichloroethane
CASRN -- 107-06-2

Not available at this time.

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_II. CARCINOGENICITY ASSESSMENT FOR LIFETIME EXPOSURE

Substance Name -- 1,2-Dichloroethane
CASRN -- 107-06-2
Last Revised -- 01/01/91

Section II provides information on three aspects of the carcinogenic risk

with DNA after in vitro or in vivo exposures.

II.B. QUANTITATIVE ESTIMATE OF CARCINOGENIC RISK FROM ORAL EXPOSURE

II.B.1. SUMMARY OF RISK ESTIMATES

Oral Slope Factor -- 9.1E-2 per (mg/kg)/day

Drinking Water Unit Risk -- 2.6E-6 per (ug/L)

Extrapolation Method -- Linearized multistage procedure with time-to-death analysis, extra risk

Drinking Water Concentrations at Specified Risk Levels:

Risk Level	Concentration
E-4 (1 in 10,000)	4E+1 ug/L
E-5 (1 in 100,000)	4E+0 ug/L
E-6 (1 in 1,000,000)	4E-1 ug/L

II.B.2. DOSE-RESPONSE DATA (CARCINOGENICITY, ORAL EXPOSURE)

Species/Strain Tumor Tumor Incidence	Reference Type	Dose Administered	Human Equivalent
Rat/Osborne-Mendel, male; hemangiosarcomas	NCI, 1978	Route: Oral, gavage mg/kg/day	mg/kg/day
0/40		0	0
9/48		47	4.46
7/27		95	8.23

Inhalation Unit Risk -- 2.6E-5 per (ug/cu.m)

Extrapolation Method -- Linearized multistage procedure, extra risk

Air Concentrations at Specified Risk Levels:

Risk Level	Concentration
E-4 (1 in 10,000)	4E+0 ug/cu.m
E-5 (1 in 100,000)	4E-1 ug/cu.m
E-6 (1 in 1,000,000)	4E-2 ug/cu.m

___II.C.2. DOSE-RESPONSE DATA FOR CARCINOGENICITY, INHALATION EXPOSURE

The inhalation unit risk was calculated from oral data in Section II.B.2., assuming 100% absorption and metabolism at the low dose.

___II.C.3. ADDITIONAL COMMENTS (CARCINOGENICITY, INHALATION EXPOSURE)

Reitz et al. (1982) found the major urinary metabolites in rats of ingested and inhaled 1,2-dichloroethane to be identical and generated in the same relative amounts.

The unit risk should not be used if the air concentration exceeds 4E+2 ug/cu.m, since above this concentration the unit risk may not be appropriate.

___II.C.4. DISCUSSION OF CONFIDENCE (CARCINOGENICITY, INHALATION EXPOSURE)

This inhalation risk estimate was derived from the oral data presented in Section II.B.2. Based on the negative inhalation study of Maltoni et al. (1980), a 95% upper bound on risk was inferred to be 1.0E-6 per (ug/cu.m) approximately 26 times smaller than in the unit risk calculated from the rat gavage data.

APPENDIX R

SOIL CLEAN-UP FOR GROUNDWATER PROTECTION
CARRIER/COLLIERVILLE SITE

1. General Information

USEPA Center for Environmental Assessment Modeling (CEAM) provided their Exposure Assessment Multimedia Model (MULTIMED) for use in determining soil clean-up levels necessary for protection of groundwater. The MULTIMED model was designed to predict groundwater contaminant concentrations downgradient from landfill based "leachate" concentrations. If acceptable contaminant levels are known for the downgradient groundwater plume, initial acceptable leachate concentrations can be found by MULTIMED through trial and error input. Acceptable leachate concentrations can then be used to derive acceptable soil clean-up levels from contaminant mass balance data and vadose zone characteristics.

2. MULTIMED Application

MULTIMED was applied to estimated and calculated site-specific hydrologic and hydrogeologic conditions in conjunction with contaminant specific physical and chemical parameters. Site data was entered into four major categories- vadose zone variables, chemical variables, source variables, and aquifer variables.

A. Vadose Zone Variables

The vadose, or unsaturated, zone variables are used by MULTIMED to determine fate and transport of the leachate as it passes through the unsaturated zone at the site. However, leachate concentrations for this site were given at the shallow groundwater surface. As a result, no leachate transport modeling for the unsaturated zone was required in this MULTIMED run.

B. Chemical Specific Variables

Chemical specific variables are used to describe the type of contaminant being modeled. For this site, the contaminant modeled was trichloroethylene. Chemical parameters required by MULTIMED for this site included the normalized distribution coefficient, biodegradation coefficient, molecular weight, mole fraction of solute, vapor pressure, and henry's law constant. Conservative values were used for any unavailable data. Chemical parameters are summarized in Table 1.

Table 1: Chemical Specific Variables

Variable	Units	Value	Source
Reference Temperature	°C	25.0	--
Normalized Distribution Coefficient (K_{oc})	ml/g	126.0	Appendix D, EPA Document 540/2-89/057, October, 1989
Distribution Coefficient (K_d)	--	0.0804	$K_d = K_{oc} * TOC$
Biodegradation Coefficient, Saturated Zone	1/yr	0.0	Most conservative estimate
Molecular Weight	g/mol	131.4	--
Mole Fraction of Solute	--	0.123E-5	--
Vapor Pressure of Solute	mm Hg	74.0	--
Henry's Law Constant	atm-m^3/mol	0.011	--

C. Source Specific Variables

Source specific variables are used to describe the quality and quantity of contaminant being modeled. Source parameters required by MULTIMED for this site included infiltration rate, spread of contaminant source, recharge rate, initial concentration at landfill, facility length, and facility width. The infiltration rate was based on 35 year rainfall data and water mass balance calculations. Infiltration calculations are provided in Attachment C to this appendix. Source specific variables are listed in Table 2.

The recharge rate is the rate at which groundwater is introduced to the modeled aquifer from an upgradient source. Because recharge contributes to a general dilution of groundwater contamination, a most conservative value of zero recharge was estimated for the recharge rate.

To account for variance in observed groundwater analytical data, a Monte-Carlo statistical method was employed by MULTIMED. The mean (avg) and standard deviation (SD) for shallow groundwater analytical data (initial leachate concentrations) were calculated using a normal distribution for data from wells near the source zone. Wells included were MW-1B, 3, 5, 9, 15, 29, 31, and 35. Initial concentrations were used for a preliminary model run and then reduced until a theoretical downgradient level of approximately 5 ug/l was achieved. The final reduced concentration distribution was then identified as the allowable or "target" leachate concentration.

In the MULTIMED model, the "facility area" is surface area of a source zone through which groundwater travels enroute to the shallow aquifer. Facility area was estimated from unpaved areas of soil contaminant isopleths presented in the Remedial Investigation Report for this site. Using these isopleths, an estimated 20,000 square meters exists as "facility area" at this site.

Table 2: Source Specific Variables

Variable	Units	Value	Source
Infiltration Rate	m/yr	0.157 to 0.45	Water Balance Calculations
Recharge Rate	m/yr	0.0	Assumes no addition of water from upgradient source
Initial Concentration at Landfill (Initial Leachate Concentration)	mg/ℓ	avg = 9.4 min = 0.005 max = 66 S.D. = 21	Normal Distribution calculated from groundwater analytical data
Initial Concentration at Landfill (Target Leachate Concentration, X_{lch})	mg/ℓ	avg = 0.033 min = 0.005 max = 0.24 S.D. = 0.076	Normal Distribution estimated for groundwater clean-up goals
Facility Area	m^2	20000	Estimate from unpaved areas of soil isopleths

D. Aquifer Specific Variables

Aquifer specific variables are used to describe the characteristics of the saturated zone. Aquifer data for the perched zone above the Jackson Clay were derived from field and laboratory testing or estimated from tabulated values for a medium to coarse grain sands with traces of gravel and silt. Aquifer specific variables are summarized in Table 3.

The downgradient receptor well at which theoretical leachate concentrations were calculated was located approximately 100 meters from the source zone and at the surface of the shallow aquifer. This distance requires MULTIMED to calculate the contaminant concentration of the shallow aquifer near the Jackson Clay "pinch-out" where the shallow aquifer first comes into contact with the Memphis Sands Aquifer.

Table 3: Aquifer Specific Variables

Variable	Units	Value	Source
Aquifer Porosity (n)	--	0.35	Estimate for relatively clean sands
Bulk Density (Γ)	g/cc	1.86	Estimate for relatively clean sands
Aquifer Thickness (b)	m	1.0	Estimate from USGS Survey Cross-Sections
Source Thickness (Mixing Zone Depth (H)	m	1.0	$H = (\alpha_v * L)^{1/2} + b * (1 - \exp(-L*Q_f/(V_s*n*b)$
Horizontal Hydraulic Conductivity (Kh_{aq})	m/yr	320 to 32,000	Estimate for well sorted sands with traces of silt and gravel
Hydraulic Gradient (i)	m/m	0.03 to 0.05	Piezometric Groundwater Surface Contour Maps
Well Distance from Site (x_r)	m	100	Groundwater distance travelled from source zone to Jackson Clay Pinch-Out

Variable	Units	Value	Source
Well Vertical Distance	--	0.0	Theoretical observation well %penetration into shallow aquifer
Aquifer Temperature	°C	17.0	Estimate for probable conditions
pH	--	5.50	Estimate from field measurements
Organic Carbon Content (TOC)	--	0.0013	Laboratory Analysis

3. MULTIMED Output

Using the initial leachate concentration distribution, the receptor point 95% Upper Confidence Level (UCL) concentration for TCE was 220.0 $\mu g/\ell$. This concentration is in excess of the Maximum Contaminant Limit (MCL) of 5 $\mu g/\ell$.

Using the target leachate concentration distribution (X_{lch}), the receptor point 95% UCL concentration for TCE was approximately 5 $\mu g/\ell$. This concentration satisfies the allowable MCL requirement of 5 $\mu g/\ell$. The MULTIMED output file for the target leachate run is presented as Attachment A to this Appendix.

4. Flushing Coefficient Calculations

The flushing coefficient (F_{cal}) for soil to groundwater contaminant transport was based on a existing soil and groundwater contaminant data. F_{cal} was calculated using site-

specific geologic and hydrogeologic data coupled with existing soil and groundwater analytical data. Existing groundwater and soil contamination concentrations from source zone wells and borings were applied to the percolate volume per year, vertical hydraulic conductivity, thickness of the vadose zone, water mass balance coefficient, vadose zone porosity, and specific weight of the vadose soils to yield a site-specific flushing coefficient. Initial soil contamination levels were taken from Table 8-6 in the RI. Initial groundwater concentrations were estimated from groundwater analytical data for Monitoring Wells MW-1B, 3, 5, 9, 15, 29, 31, and 35. A groundwater data summary is presented as part of Attachment B.

F_{cal} was calculated assuming that all existing shallow groundwater contamination is the result of groundwater flushing of contaminated soils. This assumption is conservative in that it assumes no contamination reached the shallow aquifer in free phase form during the initial spill event. If such free phase contamination were to exist, actual soil flushing coefficients would be lower than calculated. Lower flushing coefficients would then yield higher allowable target concentrations for soil clean-up.

Using the data described above, the flushing coefficient for this site was calculated to be 0.0247, or about two and one half percent. Previously submitted design flushing coefficients for this site included a factor safety of about five. This safety factor was included to account for uncertainties in selected MULTIMED input parameters. However, due to conservative revisions in the multimed input and a more accurate and conservative estimate of initial shallow groundwater concentrations, this safety factor has been excluded from calculations presented in this report. A flushing coefficient calculation summary and index of formulas is provided as part of Attachment B.

5. Soil Clean-Up Level Calculations

Target levels for soil clean-up were calculated using MULTIMED output in conjunction with known site-specific geologic and hydrogeologic data. The target mean leachate concentration from the MULTIMED target level run was applied to the percolate volume per year, vertical hydraulic conductivity, thickness of the vadose zone, water mass balance coefficient, flushing coefficient, vadose zone porosity, and specific weight of the vadose soils to yield a target level for soil clean-up. Target level data is summarized in Table 4.

The MULTIMED target mean leachate concentration for this site was 33 ug/l. Data used to calculate this value is discussed in Section 2: MULTIMED Application of this Appendix.

The percolate volume per year is that volume of water which enters the vadose zone each year and is not lost to evaporation or runoff. This volume was estimated using water balance analysis taking into account temperature, precipitation, and potential evapotranspiration over a 35 year period using the Thornthwaite method. This method is conservative in that it does not fully account for the effect of vegetative evapotranspiration. Initial percolate volume calculations were based on a total site area, or 30 acres. Percolate volumes were then reduced for the smaller site area applicable to this study. Percolate volume calculations yielded a rate of approximately 145,000 cubic feet per year based on a source zone area of 6.4 acres or 20,000 square meters.

Vertical hydraulic conductivity (Kv_{vad}) through the vadose zone was estimated as one-third of the horizontal hydraulic conductivity (Kh_{vad}). This is due to the preference of water to follow horizontal rather than vertical flow paths in anisotropic soils such as silt.

The horizontal hydraulic conductivity was estimated to be 10 feet per year using tabulated values for silts and silty sands representative of the tighter vadose zone soils present at this site. This value yields a vertical hydraulic conductivity of approximately 3.3 ft/yr. Please note that previous estimates for Kv_{vad} at this site were estimated to be one quarter of Kh_{vad}. However, a one third value is more conservative and was therefore selected for the final run.

Thickness of the vadose, or unsaturated, zone was derived from soil boring and monitoring well installation logs. The vadose zone was considered as those soils lying above the shallow groundwater surface above the Jackson Clay. Vadose zone volume was estimated as the product of the total area of the source zone, including paved areas, and the depth of the vadose zone.

The water mass balance coefficient was based on mass partitioning of solid, liquid, and vapor in the soil mass. Mass partitioning calculations are provided as part of Attachment C to this appendix.

The porosity and specific weight of the soil were estimated using tabulated values for the sandy soils encountered in the vadose zone during soil boring and monitoring well installation.

Table 4: Target Level Data

Variable	Units	Value	Source
Target Leachate Concentration (X_{lch})	mg/L	0.125	MULTIMED

Percolate Volume per Year (V_{perc})	ft^3/yr	145000	Water balance & precipitation analysis
Vertical Hydraulic Conductivity (Kv_{vad})	ft/yr	3.3	$Kv_{vad} = (1/3) * Kh_{vad}$
Depth of Vadose Zone (D_{vad})	ft	50	Soil boring data
Soil Volume of Vadose Zone (V_{soil})	ft^3	6.53E+7	Site Area * D_{vad}
Water Mass Balance Coefficient (Ch_2o)	--	0.292	Mass balance analysis
Design Flushing Coefficient (F_{des})	--	0.025	Conservatively calculated value vadose zone conditions
Porosity of Vadose Zone (n)	--	0.35	Estimate for silty to clayey sands
Specific Weight of Soil	--	2.65	Estimate for silty to clayey sands

Using the above data, the theoretical target level for soil clean-up (X_{soil}) was calculated to be 533 ug/kg. A Target Levels for Soil Clean-Up summary and index of formulas is provided as part of in Attachment B to this appendix.

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ATTACHMENT A

U. S. ENVIRONMENTAL PROTECTION AGENCY

EXPOSURE ASSESSMENT

MULTIMEDIA MODEL

MULTIMED (Version 1.01, June 1991)

Run options

CARRIER COLLIERVILLE

Chemical simulated is TCE

Option Chosen	Saturated zone model
Run was	MONTE
Infiltration input by user	
Number of monte carlo simulations	200
Run was steady-state	
Reject runs if Y coordinate outside plume	
Do not reject runs if Z coordinate outside plume	
Gaussian source used in saturated zone model	

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CHEMICAL SPECIFIC VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS MEAN	PARAMETERS STD DEV	LIMITS MIN	LIMITS MAX
Solid phase decay coefficient	1/yr	CONSTANT	0.000E+00	-999.	0.000E+00	0.100E+11
Dissolved phase decay coefficient	1/yr	CONSTANT	0.000E+00	-999.	0.000E+00	0.100E+11
Overall chemical decay coefficient	1/yr	CONSTANT	0.000E+00	-999.	0.000E+00	0.100E+11
Acid catalyzed hydrolysis rate	l/M-yr	CONSTANT	0.000E+00	-999.	0.000E+00	-999.
Neutral hydrolysis rate constant	1/yr	CONSTANT	0.000E+00	-999.	0.000E+00	-999.
Base catalyzed hydrolysis rate	l/M-yr	CONSTANT	0.000E+00	-999.	0.000E+00	-999.
Reference temperature	C	CONSTANT	25.0	-999.	0.000E+00	100.
Normalized distribution coefficient	ml/g	CONSTANT	0.126E+09	-999.	0.000E+00	-999.
Distribution coefficient	--	DERIVED	-999.	-999.	0.000E+00	0.100E+11
Biodegradation coefficient (sat. zone)	1/yr	CONSTANT	0.000E+00	-999.	0.000E+00	-999.
Air diffusion coefficient	cm2/s	CONSTANT	0.000E+00	-999.	0.000E+00	10.0
Reference temperature for air diffusion	C	CONSTANT	25.0	-999.	0.000E+00	100.
Molecular weight	g/M	CONSTANT	131.	-999.	0.000E+00	-999.
Mole fraction of solute	--	CONSTANT	0.123E-05	-999.	0.100E-08	1.00
Vapor pressure of solute	mm Hg	CONSTANT	74.0	-999.	0.000E+00	100.
Henry's law constant	atm-m^3/M	CONSTANT	0.110E-01	-999.	0.100E-09	1.00
Overall 1st order decay sat. zone	1/yr	DERIVED	0.000E+00	0.000E+00	0.000E+00	1.00
Not currently used		CONSTANT	-999.	-999.	0.000E+00	1.00
Not currently used		CONSTANT	-999.	-999.	0.000E+00	1.00

1

SOURCE SPECIFIC VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS MEAN	PARAMETERS STD DEV	LIMITS MIN	LIMITS MAX
Infiltration rate	m/yr	UNIFORM	0.450	-999.	0.157	0.450
Area of waste disposal unit	m^2	CONSTANT	0.200E+05	-999.	0.100E-01	-999.
Duration of pulse	yr	CONSTANT	-999.	-999.	0.100E-08	-999.
Spread of contaminant source	m	DERIVED	33.3	-999.	0.100E-08	0.100E+11
Recharge rate	m/yr	CONSTANT	0.000E+00	-999.	0.000E+00	0.100E+11
Source decay constant	1/yr	CONSTANT	0.000E+00	-999.	0.000E+00	-999.
Initial concentration at landfill	mg/l	NORMAL	0.330E-01	0.760E-01	0.500E-02	0.240
Length scale of facility	m	DERIVED	200.	-999.	0.100E-08	0.100E+11
Width scale of facility	m	DERIVED	200.	-999.	0.100E-08	0.100E+11
Near field dilution		DERIVED	1.00	0.000E+00	0.000E+00	1.00

1

AQUIFER SPECIFIC VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS MEAN	PARAMETERS STD DEV	LIMITS MIN	LIMITS MAX
Particle diameter	cm	CONSTANT	0.500E-01	-999.	0.100E-08	100.
Aquifer porosity	--	CONSTANT	0.350	-999.	0.100E-08	0.990
Bulk density	g/cc	CONSTANT	1.86	-999.	0.100E-01	5.00
Aquifer thickness	m	CONSTANT	1.00	-999.	0.100E-08	0.100E+06
Source thickness (mixing zone depth)	m	CONSTANT	1.00	-999.	0.100E-08	0.100E+06
Conductivity (hydraulic)	m/yr	UNIFORM	0.320E+04	-999.	320.	0.320E+05
Gradient (hydraulic)		UNIFORM	0.300E-01	-999.	0.300	0.500
Groundwater seepage velocity	m/yr	DERIVED	-999.	-999.	0.100E-09	0.100E+09
Retardation coefficient	--	DERIVED	-999.	-999.	1.00	0.100E+09
Longitudinal dispersivity	m	FUNCTION OF X	-999.	-999.	-999.	-999.
Transverse dispersivity	m	FUNCTION OF X	-999.	-999.	-999.	-999.
Vertical dispersivity	m	FUNCTION OF X	1.00	-999.	-999.	-999.
Temperature of aquifer	C	CONSTANT	17.0	-999.	0.000E+00	100.
pH	--	CONSTANT	5.50	-999.	0.300	14.0
Organic carbon content (fraction)		CONSTANT	0.130E-02	-999.	0.100E-05	1.00
Well distance from site	m	CONSTANT	100.	-999.	1.00	-999.
Angle off center	degree	CONSTANT	0.000E+00	-999.	0.000E+00	360.
Well vertical distance	m	CONSTANT	0.000E+00	-999.	0.000E+00	1.00

1 0 Values generated which exceeded the specified bounds.

1 ----- RESULTS -----

SATURATED ZONE TRANSPORT

CARRIER COLLIERVILLE - LEE THOMAS RESPONSE RUN

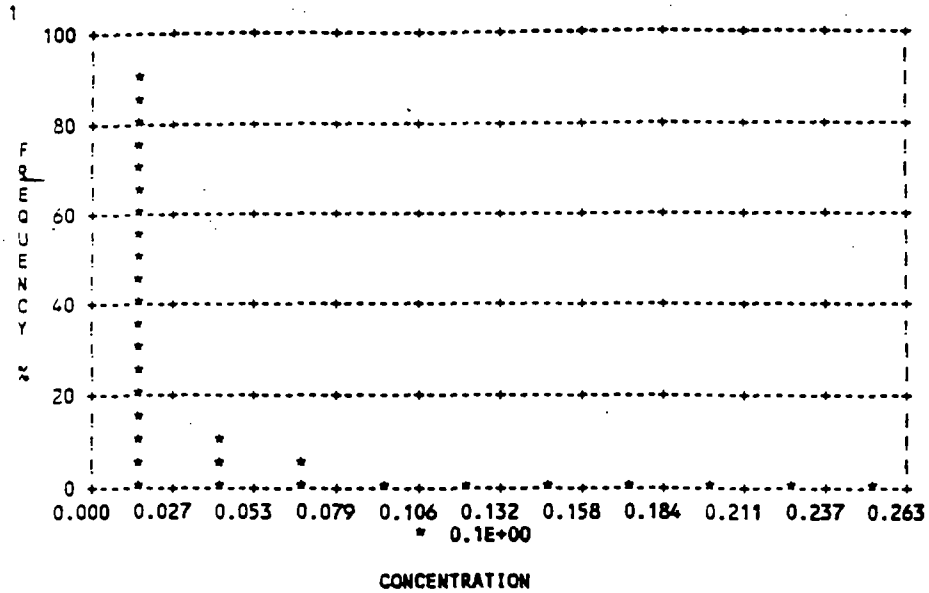
CASE

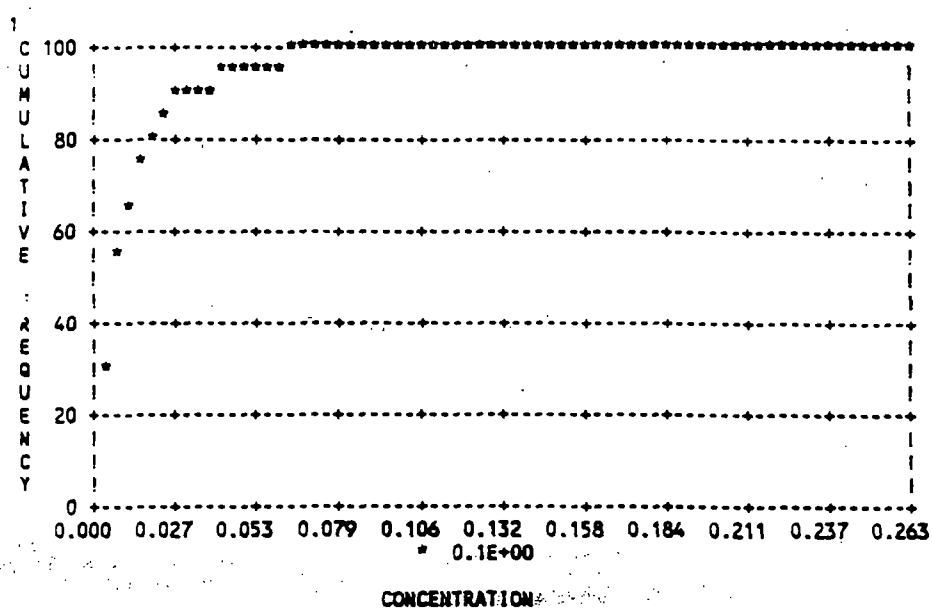
95. PERCENT CONFIDENCE INTERVAL

N	=	200		
MEAN	=	0.141E-02		
STANDARD DEVIATION	=	0.245E-02		
COEFFICIENT OF VARIATION	=	1.74		
MINIMUM VALUE	=	0.444E-04		
MAXIMUM VALUE	=	0.263E-01		
50th PERCENTILE	=	0.685E-03	0.603E-03	0.790E-03
80th PERCENTILE	=	0.181E-02	0.143E-02	0.241E-02
85th PERCENTILE	=	0.225E-02	0.181E-02	0.318E-02
90th PERCENTILE	=	0.337E-02	0.241E-02	0.429E-02
95th PERCENTILE	=	0.502E-02	0.385E-02	0.737E-02

-999 UNABLE TO COMPUTE CONFIDENCE BOUND DUE TO INSUFFICIENT DATA

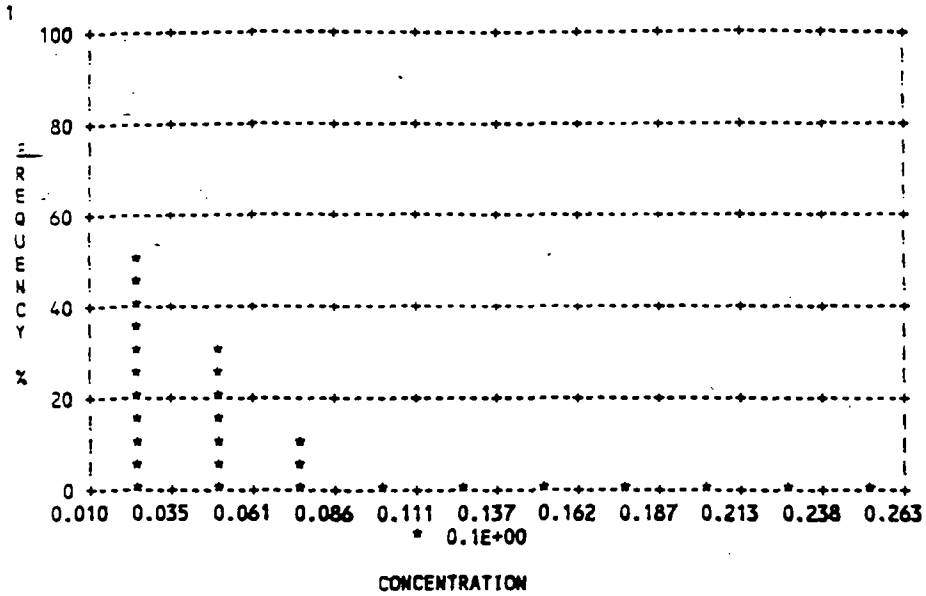
VALUE	% OF TIME EQUALLED OR EXCEEDED	% OF TIME IN INTERVAL
0.444E-04	100.000	
		88.000
0.267E-02	12.000	
		8.000
0.530E-02	4.000	
		3.000
0.793E-02	1.000	
		0.000
0.106E-01	1.000	
		0.000
0.132E-01	1.000	
		0.500
0.158E-01	0.500	
		0.000
0.184E-01	0.500	
		0.000
0.211E-01	0.500	
		0.000
0.237E-01	0.500	
		0.000
0.263E-01	0.500	

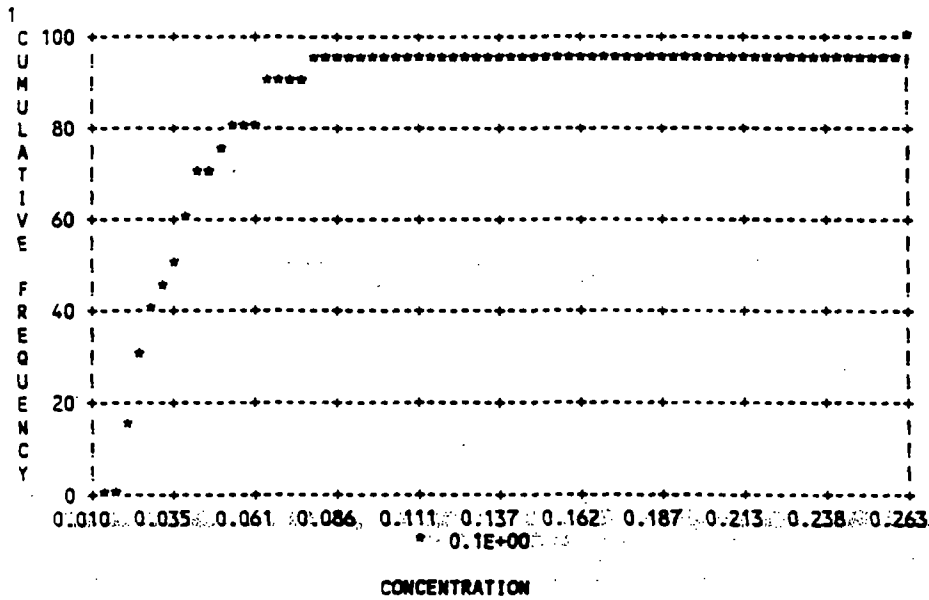

1
100
80
60
40
20
0
FREQUENCY %
0.000 0.027 0.053 0.079 0.106 0.132 0.158 0.184 0.211 0.237 0.263
* 0.1E+00
CONCENTRATION


1
100
80
60
40
20
0
CUMULATIVE FREQUENCY
0.000 0.027 0.053 0.079 0.106 0.132 0.158 0.184 0.211 0.237 0.263
* 0.1E+00
CONCENTRATION

1

FOLLOWING GRAPHS ARE FOR THE TOP 20% OF THERESULTS





ATTACHMENT B

CARRIER SHALLOW GROUNDWATER DATA
(SOURCE ZONE WELLS)

TA SUMMARY

MW#	CONC (PPB)	MW#	CONC (PPB)	MW#	CONC (PPB)	MW#	CONC (PPB)	MW	CONC (PPB)	MW	CONC (PPB)	MW#	CONC (PPB)	MW#	CONC (PPB)
1B	220	3	2400	5	260	9	20	15	38000	29	0	31	288	35	0
	390		3400		1200		30		150000		0		55		0
	380		2500		1900				120000						
	305		1800		4800				59000						
	300		4100		3200				940						
	330		1600		3100				19000						
	620		2800		2200				55000						
	490		5200		9000				20000						
	790		3300		4500				120000						
	820		3100		6500				5900						
	340		2500		8200				64000						
	500		8000		4200				140000						
	420		2600		4700										
	760		1300		1500										
	440		5400		760										
	440		2900		7500										
	77		5000		4600										
	130		6000		5600										
	310		6200		11000										
	320		7800		4400										
	490		5000		7300										
	940														
	1100														
	580														
	760														
	850														

AVERAGED DATA SUMMARY

MW#	CONC (PPB)
1B	504
3	3948
5	4591
9	25
15	65987
29	0
31	172
35	0

AVG 9403 = 9.4 PPM

FLUSHING COEFFICIENT CALCULATION SUMMARY

fln: MULTITAR.WQ1

KNOWN DATA			ENTER VALUE !!!!!	UNITS
Xlch	=	INITIAL LEACHATE CONCENTRATION	9.40E+00	mg/l
Xsoil(init)	=	INITIAL SOIL CONCENTRATION	1.52E+02	mg/kg
Vperc'	=	PERCOLATE VOLUME PER YEAR	1.45E+05	ft^3/yr
Kvvad	=	VERTICAL HYDRAULIC CONDUCTIVITY	3.30E+00	ft/yr
Dvad	=	THICKNESS OF VADOSE ZONE	5.00E+01	ft
Vsoil	=	VADOSE ZONE SOIL VOLUME	6.53E+07	ft^3
Ch2o	=	WATER MASS BALANCE COEFFICIENT	2.92E-01	DIMENSIONLESS
n	=	POROSITY OF VADOSE ZONE	3.50E-01	DIMENSIONLESS
g	=	SPECIFIC WEIGHT OF SOIL	2.65E+00	g/ml
CALCULATED RESULTS				
Vperc'	=	PERCOLATE VOLUME PER YEAR	4.11E+06	l/yr
Tperc	=	PERCOLATE RETENTION TIME	1.52E+01	yr
Vperc	=	PERCOLATE RETENTION VOLUME	6.22E+07	l
Vsoil	=	VADOSE ZONE SOIL VOLUME	1.85E+09	l
Mconperc	=	MASS OF CONTAMINANT IN PERCOLATE	5.85E+08	mg
Mconsoil	=	MASS OF CONTAMINANT IN SOIL	4.85E+11	mg
Msoil	=	MASS OF SOIL IN VADOSE ZONE	3.19E+09	kg
Fcal	=	CALCULATED FLUSHING COEFFICIENT	4.14E-03	DIMENSIONLESS

INDEX OF FORMULAS

$$Tperc = \frac{Dvad}{Kvvad} \qquad Fcal = \frac{Mconperc}{Ch2o * Mconsoil}$$

$$Vperc = Tperc * Vperc' \qquad Msoil = Vsoil * g * (1 - n)$$

$$Mconperc = Xlch * Vperc \qquad Mconsoil = Msoil * Xsoil$$

NOTE:
- INITIAL LEACHATE CONC. F/AUGUST, 1991, GW ANALYTICAL DATA FOR WELLS SCREENED NEAR THE JACKSON CLAY SURFACE WITHIN THE SOURCE ZONE.
- EXISTING SOIL CONCENTRATION (MEAN) FROM TABLE 8-6, REMEDIAL INVESTIGATION, JUNE, 1991

TARGET LEVELS FOR SOIL CLEAN-UP

fln: MULTITAR.WQ1

KNOWN DATA		ENTER VALUE !!!!!	UNITS
Xlch	= ALLOWABLE LEACHATE CONCENTRATION	3.30E-02	mg/L
Vperc'	= PERCOLATE VOLUME PER YEAR	1.45E+05	ft^3/yr
Kvvad	= VERTICAL HYDRAULIC CONDUCTIVITY	3.30E+00	ft/yr
Dvad	= THICKNESS OF VADOSE ZONE	5.00E+01	ft
Vsoil	= VADOSE ZONE SOIL VOLUME	6.53E+07	ft^3
Ch2o	= WATER MASS BALANCE COEFFICIENT	2.92E-01	DIMENSIONLESS
Fcal	= CALCULATED FLUSHING COEFFICIENT	4.14E-03	DIMENSIONLESS
n	= POROSITY OF VADOSE ZONE	3.50E-01	DIMENSIONLESS
g	= SPECIFIC WEIGHT OF SOIL	2.65E+00	g/ml

CALCULATED RESULTS			
Vperc'	= PERCOLATE VOLUME PER YEAR	4.11E+06	L/yr
Vsoil	= VADOSE ZONE SOIL VOLUME	1.85E+09	L
Tperc	= PERCOLATE RETENTION TIME	1.52E+01	yr
Vperc	= PERCOLATE RETENTION VOLUME	6.22E+07	L
Mconperc	= MASS OF CONTAMINANT IN PERCOLATE	2.05E+06	mg
Mconsoil	= MASS OF CONTAMINANT IN SOIL	1.70E+09	mg
Msoil	= MASS OF SOIL IN VADOSE ZONE	3.19E+09	kg
Xsoil	= TARGET LEVEL FOR SOIL CLEAN-UP	5.33E-01	mg/kg
	= TARGET LEVEL FOR SOIL CLEAN-UP	533	ppb

INDEX OF FORMULAS

$$Tperc = \frac{Dvad}{Kvvad}$$

$$Mconsoil = \frac{Mconperc}{Ch2o * Fdgn}$$

$$Vperc = Tperc * Vperc'$$

$$Msoil = Vsoil * g * (1 - n)$$

$$Mconperc = Xlch * Vperc$$

$$Xsoil = \frac{Mconsoil\ (mg)}{Msoil\ (kg)}$$

ATTACHMENT C

Memphis Sands Aquifer Characteristics

Transmissivity (gpd/ft)	=	242,500
Storage Coefficient	=	0.001 to 0.0001
Vertical Hydraulic Conductivity of Jackson Clay Aquitard	=	0.03-0.62 gpm
Horizontal Hydraulic Conductivity of Memphis Sands Aquifer	=	1,212.5 gpd/ft

Contaminant Distribution (Mass Partitioning)

In Vadose Zone Soils

In order to determine the distribution of contaminants in the soil medium, formulae were obtained from USEPA's Determining Soil Response Actin Levels Based on Potential Contaminant Migration to Ground Water: A Compendium of Examples, Document Number EPA/540/2-89/057, October 1989. The required calculations are as follows:

$$C_t = (\gamma_s * C_s) + (\theta * C_l) + (a * C_g)$$

Where: C_t	=	Total Contaminant Fraction	=	1.0
γ_s	=	Bulk Density of Soil (g/cm^3)	=	2.65 * (1 - porosity)
C_s	=	Solid Phase Contaminant Constant		
θ	=	Moisture Content of Soil (volume fraction)	=	0.15
C_l	=	Liquid Phase Contaminant Constant		
a	=	Air Content of Soil (volume fraction)	=	0.15
C_g	=	Gas Phase Contaminant Constant		

$$C_g = K_H * C_l$$

$$C_s = K_d * C_l$$

Where: K_H	=	Assumed @ 0.4 (from Stamina Mills RI for TCE.)		
K_d	=	Normalized Distribution Coefficient	=	K_{oc} * TOC
K_{oc}	=	Distribution Coefficient for Trichloroethylene		
TOC	=	Total Organic Carbon Fraction	=	0.0013

Contaminant Distribution Calculations (Mass Partitioning)

Vapor Partitioning Coefficent (C_{vapor}):

$$a * C_g/C_t = a * K_H/[\gamma_s * K_d + \theta + a * K_H]$$
$$= (0.15)(0.4)/[1.85(0.164) + 0.15 + (0.15)(0.4)]$$
$$= (0.06)/[0.303 + 0.15 + 0.06]$$
$$= 0.117$$

Solid Partitioning Coefficient (C_{solid}):

$$b * C_s/C_t = \gamma_s * K_d/[\gamma_s * K_d + \theta + a * K_H]$$
$$= (1.85)(0.164)/[(1.85)(0.164) + 0.15 + (0.15)(0.4)]$$
$$= (0.303)/[0.303 + 0.15 + 0.06]$$
$$= 0.591$$

Water Partitioning Coefficient (C_{H20}):

$$c * C_l/C_t = 1 - (0.117 + 0.591)$$
$$= 0.292$$

Note: Calculations assume 30% bulk soil porosity in Terrace Deposits; 70% solids; 50% interstitial saturation.

From these calaulations, it can be determined that nearly 30% of soil TCE is present in the soil-bound wate phase. This information is useful as contaminant transport in soils (at or near saturation) is dependent upon the movement of contaminants in the aqueous phase. Therefore, the determination of the portion of contaminant present in soil moisture facilitates the calculation of contaminant flushing efficiency, and in turn, the rate of contaminant transfer to other media (i.e. groundwater).

Thornthwaite Equation

The Thornthwaite equation may be used to calculate PET on the basis of average monthly temperature as follows:

$i = (T/5)^{1.514}$ = monthly heat index

$I = \Sigma i$ = heat index

$a = 0.49 + (0.0179 * I) - (0.0000771 * I^2) + (0.000000675 * I^3)$

$E_t = 1.6 [(10 * T_a) / I]^a$

E_t = Potential Evapotranspiration (PET)

T_a = Temperature C°

Note: The Thornthwaite Equation is generally conservative in that it yields under estimated values for PET.

Thornthwaite Applications

$I = 1.185 + 1.551 + 3.219 + 6.049 + 8.917 + 11.926 + 13.04 + 12.688 + 10.189 + 6.548 + 1.837 + 1.448$

$= 78.60$

$a = 0.49 + 1.407 - 0.476 + 0.328$

$= 1.749$

The average monthly temperature values used to compute monthly het\at indexes (i) were obtained from the Shelby County Soil Survey. Using this temperature data, PET for each month of the was computed and is summarized below in Table 1.

TABLE 1
MONTHLY PET VALUES

	J	F	M	A	M	J	J	A	S	O	N	D
E_t cm	0.9	1.2	2.8	5.9	9.3	13.1	14.5	14.0	10.9	6.5	1.5	1.1
E_t mm	8.8	12.1	28.3	59.1	93.0	131	145	140	109	64.9	14.7	11

These PET values may be used in conjunction with precipitation and soil data to compute annual an percolate volume. This is accomplished through application of the water balance method. The water balance for the Collierville NPL Site is shown in Table 2.

Water Balance Assumptions

Cr/o	=	Coefficient of Runoff	=	0.45
ST	=	Soil Moisture Storage	=	150 mm available water based on loamy silt surface soils. Residual moisture (May through October) obtained from tabulated values)
AET	=	Actual Evapotranspiration	=	PET if AST is positive or 0
			=	PET + [(I - PET) - AST] if AST is negative.
PERC	=	Percolation Rate	=	I - AET if ST = 150 mm
			=	I - AET - AST during soil recharge (November through January)

TABLE 2
COLLIERVILLE NPL SITE
WATER BALANCE TABLE

Parameter	J	F	M	A	M	J	J	A	S	O	N	D	
PET mm/mo.	9	12	28	59	93	131	145	140	109	65	15	11	
P[A] mm/mo.	154	119	129	118	107	93	90	75	72	69	111	125	
$C_{R/O}$	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	
R/O mm/mo.	69	54	58	53	48	42	41	34	32	31	50	56	
I P-R/O	85	65	71	65	59	51	50	41	40	38	61	69	
I-PET	+76	+53	+43	+6	-34	-80	-95	-99	-69	-27	+46	+58	
ΣNEG 1-PET				(0)	-34	-114	-209	-308	-377	-404			
ST mm	150	150	150	150	119	69	36	18	12	10	56	114	
Δ ST	+36	0	0	0	-31	-50	-33	-18	-6	-2	+46	+58	
AET mm/mo.	9	12	28	59	90	101	83	59	46	40	15	11	
PERC. mm/mo.	40	53	43	6	0	0	0	0	0	0	0	0	142 mm/yr

Notes:

PET = Potential Evapotranspiration
P = Precipitation
$C_{R/O}$ = Coefficient of Runoff
R/O = Runoff
(From Thornthwaite Equation)

I = Infiltration
ST = Soil Moisture Storage for Loamy Soil (150 mm available H_2O)
AET = Actual Evapotranspiration
PERC = Percolate

[A] - from USDA/SCS Shelby County Soil Survey - Precipitation Records 1931-1960