EN :ONMENTAL PROTECTION AGENC'
REGION IV
SURVEILLANCE AND ANALYSIS DIVISION
ATHENS, GEORGIA 30601

36539
2 2 0003

November 23, 1979

REF: 4SA-LS

Mr. O. D. Keaton
Division of Water Quality Control
727 Cordell Hull Building
Nashville, TN 37138

Dear Buster:

Attached are the results of volatile organic analysis on the split samples received by the Laboratory Services Branch on November 1, 1979. These analyses were performed in accordance with your request of October 25, 1979, to analyze 3 samples collected from wells in the Silver Springs Community.

If you have any questions concerning the analyses please contact me at 404/546-3112.

Sincerely yours,

Tom

Tom B. Bennett, Jr., Chief
Analytical Services Section
Laboratory Services Branch

Enclosures

bc: Mike Carter
Mark McClanahan

DEC 1979
SOLID WASTE MANAGEMENT

EPA-SAD, RGN. IV
ATHENS, GA
JUNE 1979

DATA REPORTING SHEET
PURGEABLE ORGANIC ANALYSIS

PROJECT Silver Springs, Tennessee CHEMIST E. W. Loy, Jr. REC'D. 11/1/79 COMPLET'D. 11/20/79

SAD NO.	79C 2753	79C 2754	79C 2555
SOURCE & STATION	Corley Well 25 A&B	Cox Well 24 A&B	Bullard Well 23 A&B
DATE/TIME	10/31/79 @ 1100	10/31/79 @ 1115	10/31/79 @ 1130
Compound	ug/L	ug/L	ug/L
dichlorodifluoromethane 2/	NA	NA	NA
methyl chloride 2/	ND (5)	ND (5)	ND (5)
methyl bromide 2/	ND (5)	ND (5)	ND (5)
vinyl chloride 2/	100	380	T<5
chloroethane 2/	ND (5)	ND (5)	ND (5)
methylene chloride 2/	T<5	ND (5)	ND (5)
trichlorofluoromethane 2/	ND (5)	ND (5)	ND (5)
1,1-dichloroethylene 2/	ND (5)	T<5	T<5
1,1-dichloroethane 2/	160	490	91
1,2-trans-dichloroethylene 2/	T<5	860	100
chloroform 2/	ND (5)	5.0	ND (5)
1,2-dichloroethane 2/	ND (5)	T<5	ND (5)
1,1,1-trichloroethane 2/	ND (5)	81	9.5
carbon tetrachloride 2/	ND (5)	ND (5)	ND (5)
dichlorobromomethane 2/	ND (5)	ND (5)	ND (5)
1,2-dichloropropane 2/	ND (5)	ND (5)	ND (5)
1,3-dichloropropylene 2/	ND (5)	ND (5)	ND (5)
trichloroethylene 2/	ND (5)	T<5	16
benzene 2/	T<5	11	ND (5)
chlorodibromomethane 2/	ND (5)	ND (5)	ND (5)
1,1,2-trichloroethane 2/	ND (5)	ND (5)	ND (5)
2-chloroethyl vinyl ether (mixed) 2/	ND (5)	ND (5)	ND (5)
bromoform 2/	ND (5)	ND (5)	ND (5)
1,1,2,2-tetrachloroethane 2/	ND (5)	ND (5)	ND (5)
tetrachloroethylene 2/	ND (5)	T<5	ND (5)
toluene 2/	ND (5)	39	ND (5)
chlorobenzene 2/	ND (5)	ND (5)	ND (5)
ethylbenzene 2/	ND (5)	T<5	ND (5)
acrolein 2/	NA	NA	NA
acrylonitrile 2/	NA	NA	NA
1,2,2 trifluoro-1 chloroethane 1/3/	ND (5)	T<5	ND (5)
1,1,2 trifluoro-1,2-dichloroethane 1/3/	44	200	16
freon 1/3/	ND (5)	48	ND (5)
carbon disulphide 1/3/	ND (5)	ND (5)	ND (5)

ND - None detected at greater than minimum detection limit, (number in parenthesis).
NA - Not analyzed.
1/ - Tentative identification.
2/ - On NRDC List of Priority Pollutants.
3/ - Estimated concentration.
T - Trace.

EPA-SAD, RGN. IV
ATHENS, GA
JUNE 1979

DATA REPORTING SHEET
PURGEABLE ORGANIC ANALYSIS

PROJECT Silver Springs, Tennessee CHEMIST E. W. Loy, Jr. REC'D. 11/1/79 COMPLET'D. 11/20/79

SAD NO.	79C 2756		
SOURCE & STATION	Barry Sulkin Well (Blank)		
DATE/TIME	10/31/79		
Compound	ug/L		
dichlorodifluoromethane 2/	NA	NA	NA
methyl chloride 2/	ND (5)		
methyl bromide 2/	ND (5)		
vinyl chloride 2/	ND (5)		
chloroethane 2/	ND (5)		
methylene chloride 2/	T<5		
trichlorofluoromethane 2/	ND (5)		
1,1-dichloroethylene 2/	ND (5)		
1,1-dichloroethane 2/	ND (5)		
1,2-trans-dichloroethylene 2/	ND (5)		
chloroform 2/	ND (5)		
1,2-dichloroethane 2/	ND (5)		
1,1,1-trichloroethane 2/	ND (5)		
carbon tetrachloride 2/	ND (5)		
dichlorobromomethane 2/	ND (5)		
1,2-dichloropropane 2/	ND (5)		
1,3-dichloropropylene 2/	ND (5)		
trichloroethylene 2/	ND (5)		
benzene 2/	ND (5)		
chlorodibromomethane 2/	ND (5)		
1,1,2-trichloroethane 2/	ND (5)		
2-chloroethyl vinyl ether (mixed) 2/	ND (5)		
bromoform 2/	ND (5)		
1,1,2,2-tetrachloroethane 2/	ND (5)		
tetrachloroethylene 2/	ND (5)		
toluene 2/	ND (5)		
chlorobenzene 2/	ND (5)		
ethylbenzene 2/	ND (5)		
acrolein 2/	NA	NA	NA
acrylonitrile 2/	NA	NA	NA
1,2,2 trifluoro-1 chloroethane 1/3/	ND (5)		
1,1,2 trifluoro-1,2-dichloroethane 1/3/	ND (5)		
freon 1/3/	ND (5)		
carbon disulphide 1/3/	33		

ND - None detected at greater than minimum detection limit, (number in parenthesis).
NA - Not analyzed.
1/ - Tentative identification.
2/ - On NRDC List of Priority Pollutants.
3/ - Estimated concentration.
T - Trace.

10-18-79 LVC

0006

2

Date Collected →	(9-24	(DUP)	(10-1	(10-1	(DUP)	(9-24	(9-24	(9-24	(10-10	(9-24	(9-24	(10-1	(9-24	(10-1
Our Lab # →	Ø-419	Ø-419	Ø-442	Ø456	Ø456	Ø421	Ø422	Ø423	Ø443	Ø424	Ø425	Ø460	Ø426	Ø459
Well # →	#5	#5	#5	#14	#14	#15	#16	#18	#19	#21	#22	#22	#23	#23
METHYLENE CHLORIDE		9.9												
1,1 DICHLOROETHYLENE														25
1,1 DICHLOROETHANE				<5	<5			<5		72	444	567	749	25 1123
TRANS 1,2 DICHLOROETHYLENE	286	224	237	<5	<5							<5		21
CHLOROFORM														
1,2 DICHLOROETHANE			<5											
1,1,1 TRICHLOROETHANE	34	15				21	22	7.8	<5	15	27	6.2	27	8.6
CARBON TETRACHLORIDE														<5
TRICHLOROETHYLENE	952	607	562							<5	11	9.1	6.1	6.6
TOTAL	1271	915	802	<5	<5	21	22	11	<5	90	482	585	782	1194
	WASHINGTON	"	"	MAYNARD, DALE	"	MAYNARD, LILLIAN	AUSMUS	BARRET	SANDERS	WINGS	VOSS	"	PATTERSON (Bullard)	

10-18-77 CPE

0007

2

Date Collected →	(9-24	(10-12	(10XD	(9-24	(OUP)	(10-1	(10-1	(10-1	(10-1	(10-1	(10-1	(10-1	(10-1	(10-1
Our Lab # →	Ø427	Ø458	Ø458	Ø428	Ø428	Ø457	Ø444	Ø445	Ø446	Ø447	Ø448	Ø449	Ø450	Ø451
Well # →	#24	#24	#24	#25	#25	#25	#25½	#26	#26½	#27	#28	#29	#30	#31
METHYLENE CHLORIDE		53	36			<5								
1,1 DICHLOROETHYLENE	38	597	240	73	52	97								
1,1 DICHLOROETHANE	6227	7198	11330	2915	1957	2508	<5		57	28	12	8.6	5.4	<5
TRANS 1,2 DICHLOROETHYLENE	342	68	57			<5					<5	<5	<5	<5
CHLOROFORM		30	25											
1 2 DICHLOROETHANE	25	17	15	<5										
1,1,1 TRICHLOROETHANE	31	20	11	<5	<5								<5	
CARBON TETRACHLORIDE														
TRICHLOROETHYLENE							55							
TOTAL	6663	7973	11714	2995	2013	2611	7	<5	57	22	14	10	8	<5
	SOX	"	"	SORLEY	"	"	TRACKER	SAWYER	ROOKER, JAMES JR.	ROGEL	ROOKER, WILLIE JR. (GOODPASTURE)	ROOKER, WILLIE	ROOKER, HOWARD	ROOKER, JAMES

WEST FORK STONES RIVER
Mann Cem
Silver Springs Sch.
Cem
SILVER SPRINGS
DUMP
LOUISVILLE AND NASHVILLE
FLORENCE ROAD
Florence
Burleson Cem
Wade
PRIVATE ROAD
SULPHUR SPRINGS
WEST
BM 525
BM 511
BM 519
BM 528
BM 549
BM 517
BM 514
BM 551
BM 548
BM 568
BM 571
500
550
600
530
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556
560
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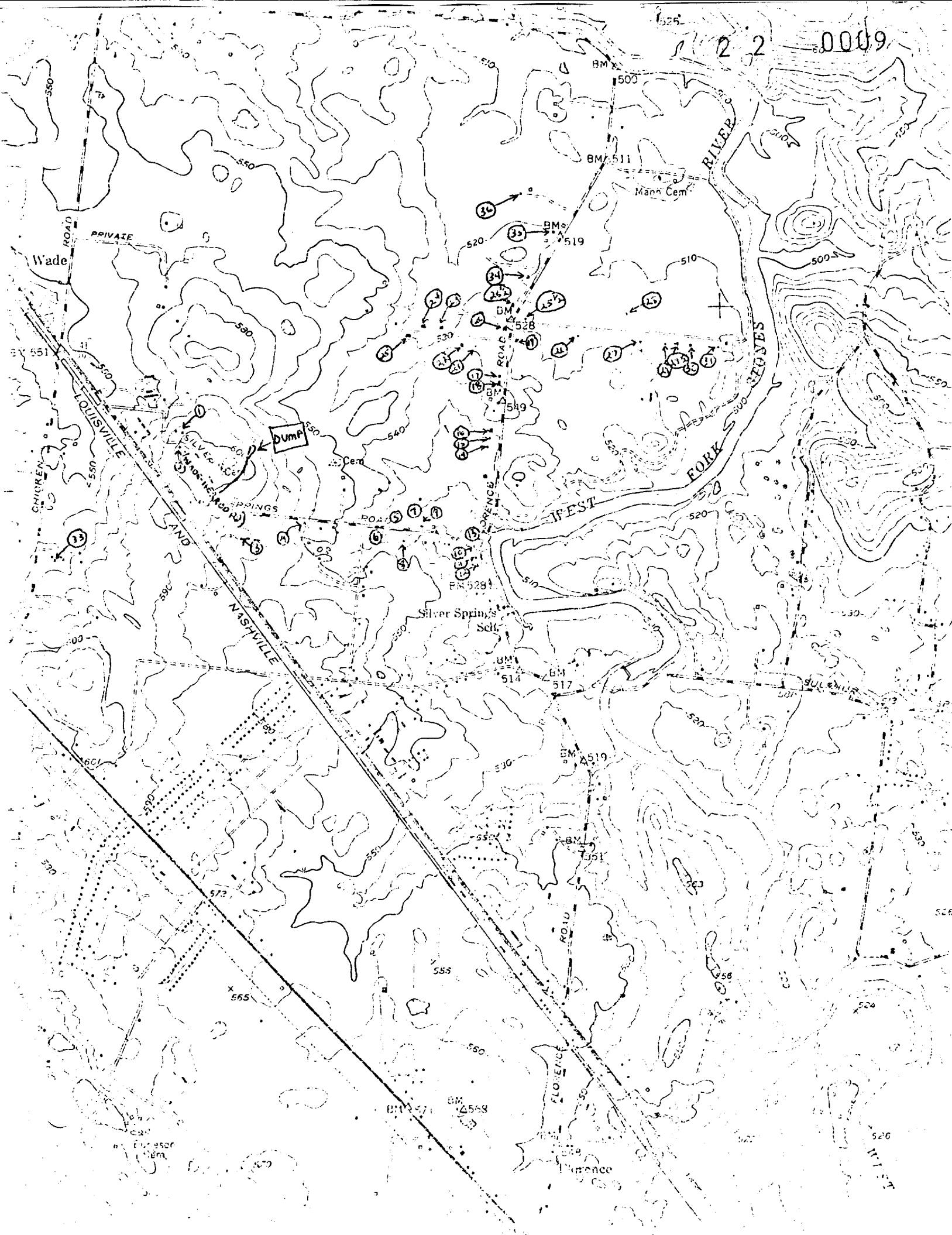
Wade
PRIVATE
ROAD
LOUISVILLE
AND
NASHVILLE
CHICKEN
Dump
SILVER SPRINGS
Cem
Mann Cem
BM 511
BM 519
BM 528
BM 549
BM 514
BM 517
BM 519
BM 551
BM 568
BM 571
Silver Springs Sch
FLORENCE
ROAD
WEST FORK
STONES
RIVER
Florence
Florence Cem

Summary of most recent sampling

	Ø419	Ø419	Ø442	Ø456	Ø456	Ø421	Ø422	Ø423	Ø443	Ø424	Ø425	Ø460	Ø426	Ø459
	#5	#5	#5	#14	#14	#15	#16	#18	#19	#21	#22	#22	#23	#23
METHYLENE CHLORIDE		9.9												
1,1 DICHLOROETHYLENE														25
1,1 DICHLOROETHANE				<5	<5			<5		72	444	567	749	1123
TRANS 1,2 DICHLOROETHYLENE	226	224	237	<5	<5							<5		21
CHLOROFORM														
1,2 DICHLOROETHANE			<5											
1,1,1 TRICHLOROETHANE	34	15				21	22	78	<5	15	27	6.2	27	8.6
CARBON TETRACHLORIDE														<5
TRICHLOROETHYLENE	952	667	562							<5	11	9.1	6.1	6.6
TOTAL	1271	915	802	<5	<5	21	22	11	<5	90	482	585	782	1194
	WASHINGTON	"	"	MAYNARD, DALE	"	MAYNARD, LILLIAN	AUSMUS	BARRET	SANDERS	HOINGS	VOSS	"	PATTERSON	

VALUES IN μg/LITER = ppb.

001 0

2

0011

2

	#24	#24	#24.	#25	#25	#25	#25½	#26	#26½	#27	#28	#29	#30	#31
	Ø427	Ø458	Ø458	Ø428	Ø428	Ø457	Ø444	Ø445	Ø446	Ø447	Ø448	Ø449	Ø450	Ø451
	(9-24	(10-12	(10XD	(9-24	(OUP)	(10-1	(10-1	(10-1	(10-1	(10-1	(10-1	(10-1	(10-1	(10-1
METHYLENE CHLORIDE		53	36			<5								
1,1 DICHLOROETHYLENE	38	597	240	73	52	97								
1,2 DICHLOROETHANE	6227	7198	11330	2915	1957	2508	<5		57	28	12	8.6	5.4	<5
TRANS 1,2 DICHLOROETHYLENE	342	68	57			<5					<5	<5	<5	<5
CHLOROFORM		30	25											
1 2 DICHLOROETHANE	25	17	15	<5										
1,1,1 TRICHLOROETHANE	31	20	11	<5	<5								<5	
CARBON TETRACHLORIDE														
TRICHLOROETHYLENE							55							
TOTAL	6663	7973	11714	2995	2013	2611	7	<5	57	28	14	10	8	<5
	COX	"	"	CORLEY	"	"	FRACKER	SAWYER	ROOKER, JAMES JR.	VOGEL	ROOKER, WILL JR. (GOODPASTURE)	ROOKER, WILLIE	ROOKER, HOWARD	ROOKER, JAMES

VALUES IN MG/LITER = ppb.

VOA Sample results — total organics in ppb

Summary of All found using

Field #	Source	3-30-79	4-3-79	4-11-79	5-7-79	6-19-79	7-11-79	7-24-79	9-24-79	10-11-79	10-12-79	10-22-79					
1	James Smith Well	40.16	6.98	10.6	small conc found	n/D	12.9	n/D									
2	Harding Well	111.97	n/D	7.5			22.05	551									
3	Petway Well				n/D		5.9	183									
4	Herrod Well				920	715	1729.4	576									
5	Washington Spring						1024	1897	1272	799							
6	Crabtree Spring							97									
7	Maynard Spring						60.6										
8	Crabtree Well						20.27	19.9									
9	Bonnell Maynard Well						48.11	69									
10	Bond Well																
11	Duffle Well																
12	Robinson Well																
13	Maynard Trib																
14	Dale Maynard Well										15						

22 0012

22 0013

Sample date →
total organic carbon in ppb ↓

Field #	Source	3-30-79	4-3-79	4-11-79	5-7-79	6-19-79	7-11-79	7-24-79	9-24-79	10-11-79	10-16-79	10-22-79					
15	Lillian Maynard Well								21								
16	Aikmus Well								28								
17	Clammons Well																
18	Barrett Well								7.8								
19	Sanders Well									<5							
20	Stewart Well																
21	(source is #20) Goings Tap								87								
22	(Formerly Voss Well) Pearcy Well								482		582.4						
23	(Formerly Patterson Well) Dullard Well								782.1		1184.2						
24	Cox Well								6663		968						
25	Corley Well								2988		2605						
25½	Fracker Well									5.5							
26	Sawyer Well									n/D							
26'	James T. Jr. Rodzer Well									57							

22 0014

Sample date →

total organics in ppb ↓

Field #	Source	3-30-79	4-3-79	4-11-79	5-7-79	6-19-79	7-11-79	7-29-79	9-24-79	10-11-79	10-12-79	10-22-79					
27	Vogel Well									27							
28	(Cooperative Owner) William Jr. Rooker Well									28							
29	Willie Rooker Well									8.6							
29½	(Source is # 28) Andrews Tap																
30	Howard Rooker Well									5.4							
31	James Sr. Rooker Well									15							
32	Smyrna Airport Well																
33	Chicken Pike Farm Well																
34	King Well																
35	Buchanan Well																
36	Patterson Well																

Chemicals Identified at the Croft Spring Site, Nashville, Tennessee

1,1,1-Dichloroethylene (probably 1,1-Dichloroethylene): Liver damage; probably some renal damage.

Chloroform: Probable carcinogen; liver and kidney damage, nervous system effects, heart effects, skin problems in that it can de-fat the skin and allow penetration to increase rapidly. Also see carbon tetrachloride, below.

Carbon Tetrachloride: Probable carcinogen; liver and kidney damage; nervous system effects, gastrointestinal effects; effects can be increased significantly when combined with alcohol. Can also interact with chloroform to increase liver damage.

1,1,2-Trichloroethane: Suspect carcinogen; potent narcotic and nervous system effects; probable liver and kidney effects.

Tetrachloroethylene: Effects on nervous system, heart, respiratory system and liver. Possible carcinogenic and reproductive effects.

Chlorobenzene: Central nervous system and skin effects.

Dimethyl Benzene(Xylene): Irritation of mucous membranes, skin and lung effects, nervous system symptoms.

Ethyl Benzene (Styrene): Irritation to mucous membranes and skin effects; nervous system effects. Possible reproductive effects and suspect carcinogen.

Trimethyl Benzene: See Xylene

1,2-Dichloroethylene: Irritation and central nervous system effects.

Methyl Benzene (Toluene): Irritation, skin and central nervous system effects.

Toluene: See Above

1,2-Dichloroethane: irritation and eye effects. Lung, liver, and kidney damage can occur. Possible carcinogen.

Trichloroethane: Irritation and possible central nervous system effects. Heart effects and possible mutugenic activity. (There are several trichloroethanes- the exact one not specified)