BOONE CREEK (KENTUCKY RIVER DRAINAGE)
BIOLOGICAL AND WATER QUALITY INVESTIGATION

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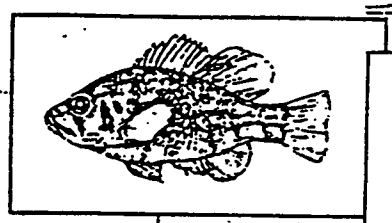

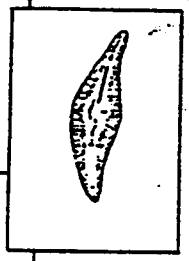

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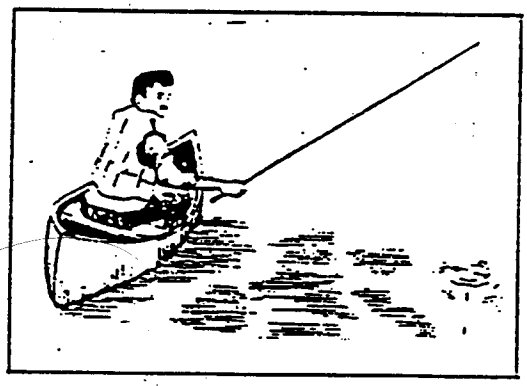

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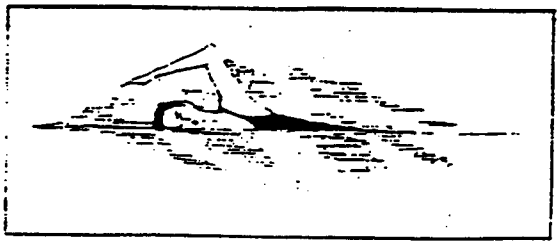

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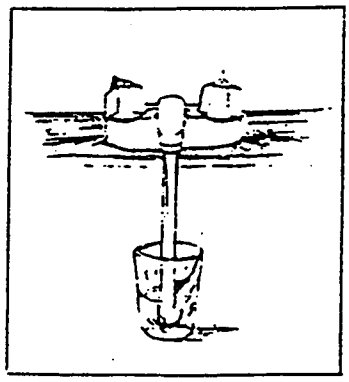

Domestic
Use

Kentucky Division of Water
Water Quality Branch
Ecological Support Section
Technical Report No. 47

BOONE CREEK (KENTUCKY RIVER DRAINAGE)
BIOLOGICAL AND WATER QUALITY INVESTIGATION

Kentucky Department for Environmental Protection
Kentucky Division of Water
Water Quality Branch
Ecological Support Section
Frankfort, Kentucky

Technical Report No. 47
May 1998

This report has been approved for release:

Jack A. Wilson, Director
Kentucky Division of Water

May 10, 1998
Date

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Executive Summary

1. A biological and water quality investigation of the Boone Creek drainage was conducted from April through June, 1992 by the Kentucky Division of Water (KDOW) to determine the baseline water quality and any impacts resulting from point and nonpoint pollution.
2. The predominant land use is agriculture (94%) followed by silviculture. Urban and commercial areas are developing in the headwaters of Baughman Fork.
3. There are four permitted point source dischargers located in the basin, three of which are found in the commercial area in the headwaters of Baughman Fork.
4. The Boone Creek drainage is an alkaline, hardwater system with elevated nutrients, principally nitrates and phosphorus. The latter two parameters exceeded the STORET 75th percentile at every site during this study.
5. During KDOW sampling period, the water quality in the mainstem of Boone Creek was considered excellent, while Baughman Fork water was considered good. The water quality in the UT to Baughman Fork was fair below Blue Sky Wastewater Treatment Plant (WWTP) and considered good above Blue Sky WWTP.
6. Iron exceeded Kentucky Surface Water Standards chronic criteria at station 26-6 on Baughman Fork.
7. An unknown toxic compound was discharged directly above site 26-6 on Baughman Fork in April 1992. Chemical analysis of the water taken during the biological sampling was unable to detect the toxic substance. The discharge of the toxic material resulted in numerous dead leeches, crayfish, and fish. It is believed that the toxic compound was

disposed of in a sinkhole which discharged to a spring that flowed into Baughman Fork just above the site.

8. Biological data, as expressed through the Biotic Assessment Index (BAI), showed that the mainstem of Boone Creek and the lower portion of Baughman Fork supported warmwater aquatic habitat (WAH) use. The maintenance of this use is threatened by watershed activities. The upper station on Baughman Fork (26-6) and the lower station on the unnamed tributary (UT) to Baughman Fork (26-7) received a BAI classification of poor, indicating the WAH uses were not being supported.
9. The Diatom Bioassessment Index (DBI), which is used to analyze a portion of the algal data, showed that lower portions of the Boone Creek drainage (stations 26-1 and 26-2) were good, while the remaining Boone Creek stations (26-3 and 26-4) received a DBI ranking of good to fair. The upper Baughman Fork site (26-6) and the lower UT to Baughman Fork station (26-7) had a DBI classification of poor. The upper UT to Baughman Fork location (26-8) had a DBI ranking of fair. Sensitive species occurred throughout the mainstem of Boone Creek and the lower portion of Baughman Fork, but decreased in the upper portion of Baughman Fork and the UT to Baughman Fork. Species tolerant to elevated nutrients were observed throughout the drainage.
10. The Macroinvertebrate Bioassessment Index (MBI), which is used to analyze aquatic macroinvertebrate data, showed that the Boone Creek drainage supports a diverse assemblage of aquatic invertebrates. The stations in the lower third of the drainage (26-1, 26-2, and 26-3) support the most diverse fauna, receiving MBI rankings of excellent. The upper station on Boone Creek received an MBI classification of excellent to good. The Baughman Fork invertebrate community received a ranking of good at the lower station

and a fair to poor at the upper station. The UT to Baughman Fork at station 26-7 below the Blue Sky WWTP received a poor ranking.

11. The Index of Biotic Integrity (IBI) was used to analyze the fish community data in the Boone Creek drainage. Generally speaking, the IBI data showed that the fish communities have been degraded by watershed activities. Stations 26-1, 26-4, 26-5, and 26-6 received an IBI classification of fair. Site 26-2 had the highest IBI ranking of good to fair, while station 26-3 had the lowest IBI classification of poor. The lower station on the UT to Baughman Fork had an IBI ranking of fair to poor.
12. The biological data assessed 17.5 miles (mi) of the Boone Creek drainage. Of these 13.7 mi supported the WAH use, but were threatened by watershed activities, while 0.2 mi partially supported the WAH use. A total of 3.6 mi did not support the WAH use. Point source discharges directly impacted 2.8 mi of streams, while 1.0 mi was directly impacted by nonpoint sources. However, virtually the entire drainage is threatened by nonpoint source pollution, principally in the form of elevated nutrients.

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INTRODUCTION

A biological and water quality investigation of the Boone Creek drainage was conducted by biologists of the Water Quality Branch of the Kentucky Division of Water (KDOW) in the spring of 1992. The objectives of this study were to determine the baseline water quality of the Boone Creek drainage and to determine any impacts from point and nonpoint source pollution on the Boone Creek aquatic ecosystem.

Boone Creek, a moderate gradient, fifth-order tributary to the middle portion of the Kentucky River, lies in one 303e segment, 04026 (Miller, Wihry, and Lee 1976). It is located in United States Geological Service hydrological unit 05100205. A map depicting the sampling locations is presented in Figure 1.

Boone Creek rises in east-central Fayette County and west-central Clark County. The stream flows in a southerly direction, forming the Fayette-Clark county boundary for most of its length, before its confluence with the Kentucky River near Clays Ferry. Boone Creek drains 44.1 mi^2 (114 km^2) (Bower and Jackson 1981) primarily of the Inner Blue Grass and, to a lesser extent, the Eden Shale Belt (area around the mouth) subsections of the Blue Grass Section of the Interior Low Plateaus Province (Quarterman and Powell 1978). The Boone Creek drainage is entrenched in Ordovician aged limestone in an area dominated by karst topography (Miller, Wihry, and Lee 1975). Boone Creek flows entirely within the Interior Plateau Ecoregion (Omernik 1987.)

Both point and nonpoint source pollution occur in the Boone Creek basin. The extreme headwaters of Baughman Fork, a major tributary to Boone Creek, are presently being converted from agricultural to urban uses, primarily single family dwellings. Another portion of the

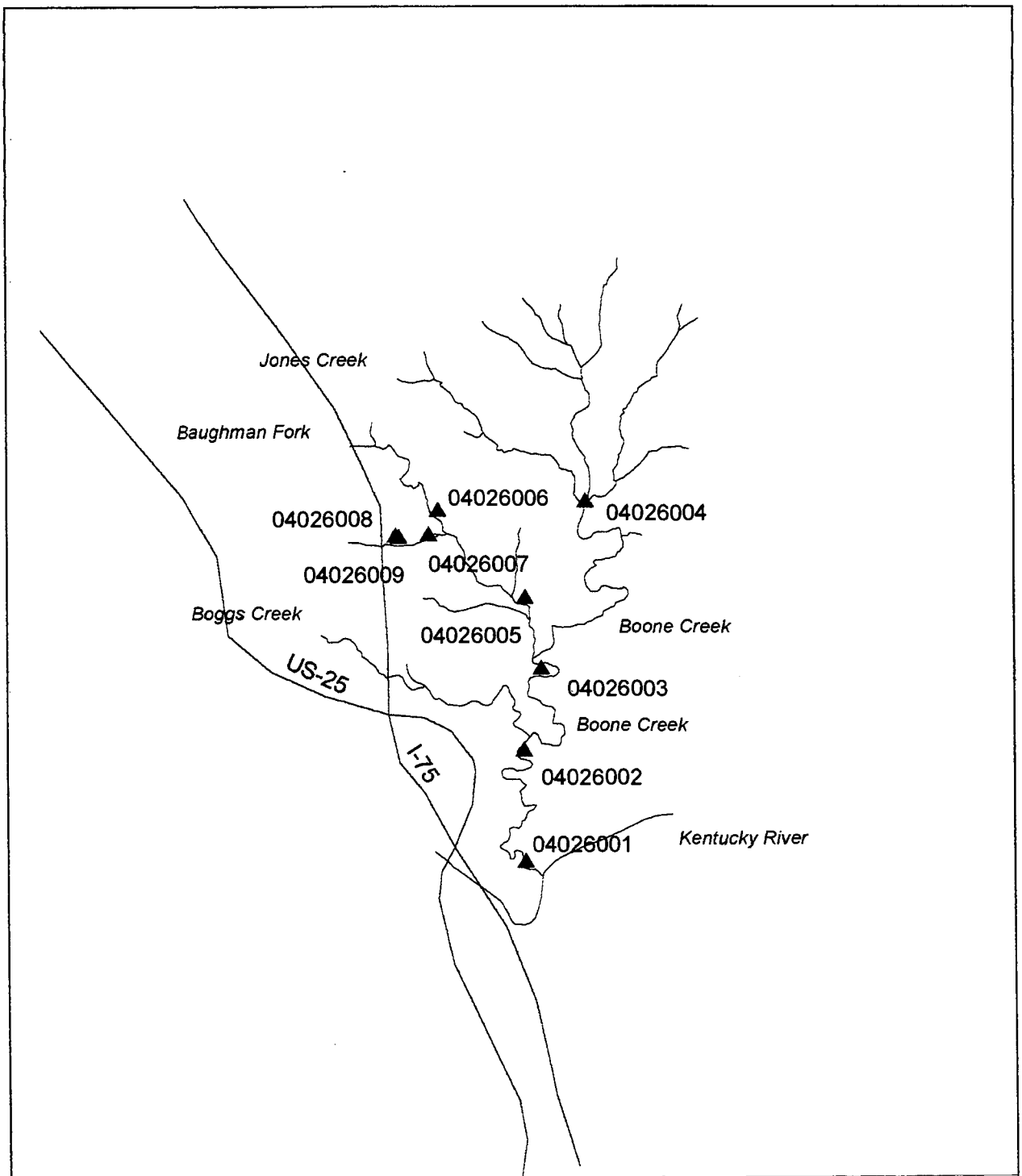

Figure 1. Map of Boone Creek Depicting Sampling Locations

Major Roads
Streams
▲ Sites

Baughman Fork drainage has been developed into an industrial park and commercial area. According to KDOW facility files, there are four permitted discharges, i.e., wastewater treatment plants (WWTPs), that discharge to the Boone Creek drainage (Table 1). At the time this study was conducted, the Bluegrass Christian Camp seasonally operated a small WWTP that discharged to the middle reach of Boone Creek; however, this plant was deactivated in January 1993 and replaced with a septic tank and leachfield. The Blue Sky Development is the largest discharger, with a combined compacity of 0.45 million gallons per day (mgd), followed by JFG Enterprises WWTP, with a design flow of 0.07 mgd. Both of these treatment facilities have tertiary treatment via lagoons.

Table 1. List of Permitted Discharges that Discharge to the Boone Creek Drainage

Facility Name	County	Discharge Type	Design Flow
Private Residence	Clark	Stream-UT to Boone Creek	0.0004 mgd
Safety Clean Corp.	Fayette	Stream-UT to Baughman Fork	NA
BlueSky Development	Fayette	Stream-UT to Baughman Fork	0.15 & 0.30 mgd
JFG enterprises	Fayette	Stream-UT to Baughman Fork	0.07 mgd

mgd- million gallons per day, NA- Not applicable

According to Miller, Wihry, and Lee (1975), the predominant land use in the basin is agriculture (94%) followed by silviculture. Livestock have access to the streams of the drainage throughout the basin. Extensive algal growths can be seen throughout the upper two-thirds of the drainage in the summer, probably resulting from excessive nutrient inputs from point source discharges and agricultural activities.

Scientific literature available for Boone Creek is sparse. The Kentucky Nature Preserves commission (KNPC 1982) recommended Boone Creek for outstanding resource water status

based on its exceptional aesthetic value, its diverse and unique aquatic biota, and that it is a unique aquatic environment within a physiographic region. The Kentucky Rivers Assessment (KDOW and NPS 1992) considered Boone Creek an important stream in six categories: undeveloped corridor characteristics, botanical resources, fish resources, scenic features, whitewater recreational boating, and water quality. Neel (1951) discussed the physical and chemical features of Boone Creek. Neel (1968) discussed the algae and macroinvertebrates of Boone Creek. Jones (1973) sampled fish and collected rudimentary physicochemical data from one location on Boone Creek.

Though stream sites ranged from second to fifth order, all had pool and riffle habitats, undercut banks, root wads, leaf packs, woody debris, and sandy-silty areas. At least one bank was forested at every site, with the two lowermost sites, forested on both sides of the stream. Additional site information can be found in Appendix A.

METHODS

Physicochemical, sediment, and biological field collection methods and biological data analysis methods follow those outlined in KDOW (1993). Physicochemical samples were delivered to the Kentucky Division of Environmental Services' laboratory for analysis.

The physicochemical data were examined to assess water quality and identify designated uses based on Kentucky Surface Water Standards (KSWS). If no parameters exceeded the KSWS criteria, no use impairment was indicated. If any parameter's concentration was greater than the KSWS acute criterion, that parameter was considered to be a potentially serious threat to water quality. In addition to KSWS, STORET (1983-1993) database values were used to aid in evaluation of water quality. If a parameter's concentration exceeded the KSWS chronic

criterion or the STORET 75th percentile, it was considered elevated and a possible cause of water quality degradation. Because the physicochemical data are indicative only of the time frame being sampled, it is primarily used to support biological data.

Sediment data were collected in accordance with KDOW (1993). Data were compared to STORET (1983-1993) and US EPA (1977) values.

Biological samples (algae, macroinvertebrates, and fish) were collected in accordance with KDOW (1993) and identified to the lowest possible taxonomic level. Laboratory procedures, data analysis, and interpretation methods are also described in KDOW (1993). Quality assurance procedures are outlined in KDOW (1986).

The Biotic Assessment Index (BAI) combines the algal, macroinvertebrate, and fish data to assess the ecological health of a waterbody. Each data set is analyzed and scored independently, then the individual scores are averaged. The resulting score is compared to the values in Table 2 for the appropriate WAH use support designation. Each BAI score is given a descriptive classification (bioassessment) of either excellent, good, fair, or poor.

Table 2: Interpretation of Biotic Assessment Index (BAI) Scores

BAI Score	Bioassessment	WAH Use Support
4-5	Excellent	Fully Support
3-4	Good	Support (but threatened)
2-3	Fair	Partial Support
1-2	Poor	Non-Support

WAH - Warmwater Aquatic Habitat

The algal data were analyzed using the multiple metric Diatom Bioassessment Index (DBI). This index assesses the biological integrity of the algae community at each station. The metrics include: total number of diatom taxa (TNDT), Shannon diversity (H'), pollution tolerance index (PTI), relative abundance of sensitive species (%SSP), and percent community

similarity (PSc). The DBI has been modeled after other multiple-metric bioassessment methods such as the Index of Biotic Integrity (IBI) developed by Karr (1981), the Rapid Bioassessment Protocols developed by the US EPA (Plakfin et al. 1989), and the "Rapid Bioassessment of Lotic Macroinvertebrate Communities: Biocriteria Development" manual used by the state of Arkansas (Shackleford 1988). Methods for calculating metrics used in the DBI are described in KDOW (1993). Scoring criteria have been developed for each metric for the Interior Plateau Ecoregion. Scores range from one to five for each metric, with one the lowest and five the highest possible score. The mean of the five separate metric scores results in a final DBI score, also ranging from one to five.

The Macroinvertebrate Bioassessment Index (MBI), another multimetric index similar in concept to the DBI and IBI, was calculated using seven metrics: taxa richness (TR), total number of individuals (TNI), Ephemeroptera-Plecoptera-Trichoptera (EPT) index, percent contribution of dominance five (PCD_5), the Hilsenhoff Biotic Index (HBI), percent community similarity (PSc), and dominance in common-five (DIC_5) (KDOW 1993). As in the DBI, each metric was separately scored using criteria developed for that particular ecoregion, then all metrics were averaged to obtain the final MBI score for each site.

Fish data were analyzed using Karr's (1981) index of biotic integrity (IBI). The IBI scoring criterion have been modified for Kentucky ecoregions as described in KDOW (1997). The final IBI score was converted to a score of one to five based on the IBI classification of excellent, good, fair, or poor.

PHYSICOCHEMICAL DISCUSSION

Physicochemical data were collected from eight locations in the Boone Creek drainage in April 1992. Parameter coverage included analyses for inorganic, nonmetal constituents, metals, and organics. A total of 168 parameters were analyzed from the eight sampling locations (Appendix B). Physicochemical parameters that exceeded either the STORET (1983-1993) 75th percentile or the Kentucky Surface Water Standards (KSWS) are presented in Tables 3 and 4, respectively.

Table 3: Physicochemical Parameters from the Boone Creek Drainage that Exceeded STORET (1983-1993) 75th Percentiles

	Stations								
Parameter	**26-1**	**26-2**	**26-3**	**26-4**	**26-5**	**26-6**	**26-7**	**26-8**	**STORET 75th Percentile**
Chloride (mg/l)							20.5		14.3
Conductivity (umhos/cm)					461		630	617	409
Sulfate (mg/l)							77.6	83.0	67.9
Total Kjeldhal Nitrogen (mg/l)	0.085						2.94		0.593
Nitrate-N (mg/l)	1.86	2.53	2.72	2.89	2.18	1.19	2.99	3.02	1.05
Phosphorus (total) (mg/l)	0.220	0.217	0.233	0.255	0.341	0.254	0.911	0.258	0.115
Ammonia Nitrogen (mg/l)					0.139	0.307	2.34		0.060
Iron (mg/l)						1.63			1.24
Total	3	2	2	2	3	4	7	4	

Table 4: Physicochemical Parameters from the Boone Creek Drainage that Exceeded Kentucky Surface Water Standards (KSWS) Chronic Criteria

	Stations								
Parameter	**26-1**	**26-2**	**26-3**	**26-4**	**26-5**	**26-6**	**26-7**	**26-8**	**KSWS Chronic Criteria**
Iron (mg/l)						1.63			1.00

Previous physicochemical data are presented by Neel (1951) and Jones (1973). The latter only provides basic field data; however, Neel (1951) discusses at length various physicochemical factors in Boone Creek including water temperature, dissolved oxygen, pH, alkalinity, carbon dioxide, phosphorus, iron, and manganese. He notes that all of these constituent concentrations were dependent on stream flow, photosynthesis and decomposition. He also attributes fluctuating phosphorus concentrations primarily to leaching from soils and, secondarily, to fertilizers and animal waste. Physicochemical data, both historical and current, indicate that the Boone Creek drainage is an alkaline, hardwater system. Nutrients were elevated and were associated with anthropogenic and natural causes.

Physicochemical data collected during this study indicate that water quality in the mainstream of Boone Creek was excellent; however, the water quality in Baughman Fork was somewhat degraded by nonpoint sources, but was still considered good. The water quality in the UT to Baughman Fork, that drains the commercial and industrial area, is degraded below the Blue Sky WWTP. The water quality at that location (Station 26-7) was considered fair, while upstream of that location (Station 26-8), the water quality improved somewhat and was considered good.

As can be seen in Table 3, Station 26-7, located on the UT to Baughman Fork below the Blue Sky WWTP, had the largest number of parameters (7) that exceeded the STORET 75th percentile. Stations 26-6, and 26-8, both located in the Baughman Fork drainage, had the next highest number (4) of elevated constituents. Station 26-6, located on Baughman Fork above the UT, had an iron value that exceeds KSWS chronic criteria of 1.0 mg/l. During this study, in late April 1992, this site also received a toxic discharge. Apparently some type of toxicant was disposed of in a sinkhole that was connected to a spring that discharged to Baughman Fork

approximately 0.2 mi upstream of this site. That toxic discharge killed virtually all aquatic life as demonstrated by the numerous dead leeches, crayfish, fish, and algae observed by the KDOW biologists sampling that site. Analyses of water samples taken from the impacted area did not identify the toxicant. Because of the karst topography that occurs throughout a major portion of the Boone Creek drainage, the possibility of reoccurrence of incidents similar to this exists.

Nutrients, principally nitrates and phosphorus, are elevated throughout the Boone Creek basin. The sources of these nutrients arise from both point and nonpoint activities. Nutrients discharged from the JFG Enterprises and Blue Sky WWTPs impact the UT to Baughman Fork and Baughman Fork below the UT. Nonpoint source pollution arising from agricultural activities is believed to be the source of nutrients throughout the remainder of the drainage. Elevated nutrients can cause nuisance growths of algae and will, over time, alter the aquatic communities, shifting from communities dominated by sensitive organisms to communities dominated by facultative and tolerant organisms.

SEDIMENT DISCUSSION

Sediment data are compared to US EPA (1977) Great Lake harbor sediment data (Table 5) and the STORET (1983-1993) sediment data 75th percentile (Table 6). Table 7 lists organic constituents that were observed in the Boone Creek sediments. A complete listing of the sediment data collected during this study appears in Appendix C.

Comparison of data from this report to US EPA (1977) (Table 5) shows that a total of 13 parameters were in either the moderately or heavily polluted category at one or more sites. Four parameters, barium, iron, manganese, and total volatile solids (TVS), were either moderately or heavily polluted at every site. Ammonia-nitrogen and total Kjeldhal nitrogen (TKN) were in one

of the two pollution categories at five of the eight sites. Station 26-1, located near the mouth of Boone Creek, had the least number of parameters in one of the two pollution categories, while stations 26-3 (Boone Creek above the KY 418 bridge) and 26-7 (UT to Baughman Fork below the industrial park and commercial area) had the highest number of constituents in the two pollution categories.

Table 5: Comparison of Boone Creek Drainage Sediment Data to US EPA (1977) Pollution Guidelines

	Stations							
Parameter (Mg/kg)*	**26-1**	**26-2**	**26-3**	**26-4**	**26-5**	**26-6**	**26-7**	**26-8**
Barium	HP	HP	HP	HP	HP	HP	HP	HP
Chromium	MP	MP	MP					
Iron	HP	HP	HP	HP	HP	HP	HP	HP
Lead		HP	MP					MP
Manganese	HP	HP	HP	HP	HP	HP	HP	HP
Nickel		HP		MP			MP	MP
Zinc		MP	MP				MP	
Total Volatile Solids (%)	MP	HP	HP	HP	HP	MP	HP	MP
Ammonia-Nitrogen			MP		MP	MP	MP	MP
Total Kjeldhal Nitrogen			MP	HP	HP	HP	HP	
Oil and Grease							HP	
Total MP	2	2	5	1	1	2	3	4
Total HP	3	6	4	5	5	4	6	3
Total -Combined	5	8	9	6	6	6	9	7

***Parameters in mg/kg unless otherwise stated.**
MP-Moderately Polluted, HP - Heavily Polluted

A comparison with STORET (1983-1993) data (Table 6) shows that 13 parameters exceeded the STORET 75th percentile. Aluminum and total organic carbon (TOC) were elevated at all sites, while iron, lead, manganese, and ammonia-nitrogen were elevated at seven locations. Station 26-4 had the least number of elevated parameters with four, while stations 26-7 had the highest number of elevated constituents, with 12. Stations 26-3 and 26-4, both on Boone Creek,

had 11 parameters elevated above the STORET 75th percentile. Total Kjeldhal nitrogen at station 26-6 was extremely elevated.

Ten organic constituents, believed to be from anthropogenic watershed activities, were found in the Boone Creek sediments (Table 7). Both acetone and methylene chloride were found at all sites; however, the source of these compounds is believed to be the result of contamination during laboratory analysis, therefore, they are not listed in Table 7. The remaining eight organics were found sporadically at the eight sites. Again, Station 26-7 had the highest number of organics present in the sediments.

Table 6: Sediment data from the Boone Creek Drainage that Exceeded the STORET (1983-1993) 75th Percentiles

	Stations								
Parameter (mg/l)*	**26-1**	**26-2**	**26-3**	**26-4**	**26-5**	**26-6**	**26-7**	**26-8**	**STORET 75th Percentile**
Aluminum	25,200	21,800	20,400	17,500	11,800	15,100	19,600	16,100	10,200
Cadmium						0.554	0.584		0.500
Chromium	25.8	42.4	36.0	17.3			22.9	21.6	17.0
Iron	40,100	121,000	85,600	31,100	26,400		27,500	37,500	25,600
Lead	31.7	77.0	47.4	29.8	30.2		34.6	41.9	28.3
Manganese	2,850	6,010	3,370	2,420	2,770		2,240	2,200	1,700
Nickel		63.3	39.6	29.7					26.3
Zinc		116	138				96.7	89.7	88.8
Oil and Grease				737	574		2,690	612	198
Total Organic Carbon	11,900	9,050	14,500	28,200	23,700	31,800	21,700	26,500	5,328
Total Volatile Solids (%)		9.29	10.3	10.8	8.99		8.57		7.9
Ammonia-Nitrogen		64.9	90.8	62.8	125	1,430	198	105	62.0
Total Kjeldhal Nitrogen			1,900	2,160	1,730		1,960	1,750	993
Total	6	10	11	11	9	4	12	10	

***Parameters in mg/kg unless otherwise stated.**

The sediments of the Boone Creek drainage were moderately impacted. The two most severely degraded areas were the UT to Baughman Fork site below the industrial park and

commercial area (Station 26-7) and Boone Creek above the KY 418 bridge (Station 26-3). The area with the least impacted sediments was Boone Creek above the mouth (Station 26-1).

Table 7: List of Organic Constituents Found in the Boone Creek Drainage Sediments

	Stations							
Constituent	**26-1**	**26-2**	**26-3**	**26-4**	**26-5**	**26-6**	**26-7**	**26-8**
Toluene	X	X	X					
2-Butanone (Methyl Ethyl Ketone)						X		
O,P'-DDE							X	
Dieldrin							X	
Total DDT							X	
Dibutyl Phthalate						X		
Bis (2-Ethylhexyl Phthalate	X			X			X	X
Bis (2-Ethylhexyl) Adipate								
Total	2	1	1	1	0	2	4	1

BIOLOGICAL DISCUSSION

Algae, macroinvertebrates, and fish were collected from seven locations in the Boone Creek drainage, though only algae were collected at Station 26-8. Biological collections were made in April and May 1992. Taxa lists for all sampled locations can be found in Appendix C (algae), D (macroinvertebrates), and E (fish).

Previously published biological data for the Boone Creek basin are limited to two publications. Neel (1968) discussed the algae and macroinvertebrates of the Boone Creek drainage. Jones (1973) presented limited fish data from one site on Boone Creek below Boggs Fork. He also noted that Boone Creek supported a put-and-take trout fishery.

A Biotic Assessment Index (BAI) was calculated for each Boone Creek drainage biological station sampled during this study. The BAI scores and corresponding assessment

classifications are presented in Table 8. All Boone Creek stations (26-1, 2, 3, and 4) and the lowermost Baughman Fork station (26-5), were supporting the warmwater aquatic habitat WAH) use, but were all considered to be threatened by nonpoint source pollution (Boone Creek) or a combination of both point and nonpoint source pollution (Baughman Fork). Stations 26-6 Baughman Fork and 26-7 on the UT to Baughman Fork were not supporting the WAH use. Impacts from the Blue Sky WWTP have degraded Station 26-7. Station 26-6 was impacted by the discharge of an unknown toxic substance discussed earlier. Station 26-8, which is located in the headwaters of the UT to Baughman Fork, partially supports the WAH use. The principal impacts to this stream reach were runoff from the commercial area and the JFG WWTP effluent.

Table 8: Biotic Assessment Index (BAI) Scores and Assessment Classifications for the Boone Creek Drainage

	Index					
Station	**DBI Score**	**MBI Score**	**IBI Score**	**BAI Score**	**BAI Ranking**	**Assessment Classification**
26-1	3.50	4.29	2.60	3.46	Good	Supporting But Threatened
26-2	3.20	4.60	3.00	3.60	Good	Supporting But Threatened
26-3	3.00	4.71	1.80	3.17	Good	Supporting But Threatened
26-4	3.00	4.00	2.20	3.07	Good	Supporting But Threatened
26-5	3.00	3.86	2.80	3.22	Good	Supporting But Threatened
26-6	1.20	2.00	2.20	1.80	Poor	Not Supporting
26-7	1.80	1.71	2.00	1.84	Poor	Not Supporting
26-8	2.40	ND	ND	ND	ND	Partially Supporting

ND - Not Determined

The total stream miles assessed in the Boone Creek drainage during this study were 17.5 mi, of which 12.6 mi were on the mainstem of Boone Creek, 3.2 mi. were on Baughman Fork, and 1.7 mi were on the UT to Baughman Fork (Table 9). A total of 14.1 mi supported WAH use but were threatened by watershed activities (i.e., point and nonpoint source pollution). Two tenths of a mile on the UT to Baughman Fork partially supported WAH use, while 3.2 mi, (1.7 on Baughman Fork and 1.5 mi on the UT to Baughman Fork) did not support WAH use. Of the

3.5 mi impacted, 2.8 mi were degraded by point source activities (WWTP effluents) and 1.0 mi was impacted by nonpoint source activities. However, a major portion of the drainage has inadequate riparian buffer zones and livestock are allowed direct access to drainage streams, thus increasing the potential for future water quality degradation of the Boone Creek basin.

Table 9: Number of Stream Miles Assessed with the Biotic Assessment Index in Boone Creek Drainage Streams

Miles Assessed (MP to MP)	12.6 0.0-12.6	3.2 0.0-3.2	1.7 0.0-1.7	17.5
WAH Use Fully Supported but Threatened (MP to MP)	12.6 0.0-12.6	1.5 0.0-1.5	0	14.1
WAH Use Partially Supported (MP to MP)	0.0	0.0	0.2 1.5-1.7	0.2
WAH Use Not Supported (MP to MP)	0.0	1.7 1.5-3.2	1.5 0.0-1.5	3.2
Miles Impacted by Point Source Pollution (MP to MP)	0.0	0.7 1.5-2.2	1.7 0.0-1.7	2.4
Miles Impacted by Nonpoint Source Pollution (MP to MP)	0.0	1.0	0.0	1.0

ALGAL DISCUSSION

We collected 129 algal taxa from five divisions: Rhodophyta (3), Chlorophyta (12), Cyanophyta (8), Euglenophyta (2), and Chrysophyta (104). The chrysophytes included one species of *Vaucheria* and 103 diatom taxa. In an earlier survey, Neel (1968) sampled benthic algae in Boone Creek at Grimes Mill (our site 26-2) in 1949 and 1950. We collected several taxa in common with Neel's study, including *Lemanea sp.* and *Batrachospermum sp.* (Rhodophyta), *Cladophora glomerata* and *Spirogyra* (Chlorophyta), *Vaucheria* and several diatom species (Chrysophyta), and bluegreen algae (Cyanophyta.) This type of assemblage is typical of Blue Grass streams with limestone bedrock substrates.

Neel (1968) collected the bluegreen algae *Phormidium* and *Lyngbya* in several of his samples, while we did not collect them in 1992. Lack of collection at that time, however, does not mean they were not there; we collected both *Phormidium retzii* and *Lyngbya major* in August 1995. Many of our samples contained a different bluegreen algal genus, *Oscillatoria*, which can be confused at times with *Phormidium*, as the latter has a sheath around the trichomes (filaments) while the former does not (Prescott, 1962.)

After review of the historical literature, the benthic algal community of Boone Creek appears not to have changed much since 1949-1950. This is not surprising, since land use has also not changed appreciably over the intervening time period. In contrast, Baughman Fork probably has changed. Before the Blue Sky WWTP was constructed, Neel (1951) was justified in writing, "Though no industrial wastes empty into its drainage it cannot technically be considered unpolluted, as it receives domestic sewage and farm wastes" from the villages and farms in the drainage. Baughman Fork is now impacted by municipal and industrial wastes that threaten the downstream algal communities in Boone Creek.

The Diatom Bioassessment Index (DBI) values for our samples were calculated as described in the methods section. Since Neel did not quantify the diatoms in the samples he collected in 1949-1950, it was impossible to calculate a DBI for them. However, many of the species he did identify were common in our study as well.

While all the Boone Creek sites were classified as good, the two farthest downstream, 26-1 and 26-2, received the highest DBI scores because they had the greatest number of sensitive species, highest pollution tolerance index (PTI) scores, and good taxa richness and diversity (Table 10). They are not as impacted by nonpoint sources of pollution as station 26-4, where cattle have direct access to the stream. Station 26-1 was used as the control to determine the

Percent Community Similarity (PS_C) index for other sites. *Achnanthes linearis* var. *pusilla* (17%) and *A. minutissima* (12 %) were dominant at station 26-1. At station 26-2, the *Cladophora* epiphytes *Cocconeis pediculus* (29%), *C. placentula* var. *euglypta* (13%) and *Gomphonema angustatum* (18%), dominated the diatom community.

Table 10 : Diatom Bioassessment Index (DBI) Scores and Classifications for the Boone Creek Drainage

	Stations							
Metric	**26-1**	**26-2**	**26-3**	**26-4**	**26-5**	**26-6**	**26-7**	**26-8**
TR	51 (3)	47 (3)	49 (3)	61 (4)	56 (4)	22 (1)	38 (2)	31 (2)
H'	1.25 (4)	1.08 (4)	1.16 (4)	1.37 (5)	1.36 (5)	0.64 (1)	1.11 (4)	1.04 (3)
PTI	2.4 (4)	2.5 (4)	2.2 (3)	1.9 (2)	2.0 (2)	1.3 (1)	1.6 (1)	2.4 (4)
%SSp	3.2 (3)	1.9 (2)	0.2 (1)	0.2 (1)	0 (1)	0 (1)	0 (1)	0 (1)
PS_c	na	39.3 (3)	44.2 (3)	49.4 (3)	36.8 (3)	18.9 (2)	23.8 (2)	26.3 (2)
DBI	3.5	3.2	2.8	3.0	3.0	1.2	2.0	2.4
Class	good	good	fair/good	good	good	poor	poor/fair	fair

TR=Taxa Richness; H'=Shannon diversity; PTI=Pollution Tolerance Index; %SSp=Relative abundance of sensitive species; PS_c=Percent Community Similarity; Class=classification

Stations 26-3 and 26-4 on Boone Creek, and Station 26-5, the lowermost Baughman Fork station, were also classified as good. They were different from the downstream Boone Creek stations described above in that they had fewer sensitive species. Stations 26-3 and 26-5 were probably affected by point source pollution from the Blue Sky WWTP, as well as nonpoint source pollution from surrounding farms, although the dominant diatoms of Station 26-3 were similar to 26-2: *C. placentula* var. *euglypta* (17%), *G. angustatum* (23%), and *Navicula salinarum* var. *intermedia* (13%). Station 26-4, as mentioned above, was enriched by pasture runoff, and the dominant diatom there was *Navicula minima* (16%). That particular diatom, which thrives in streams affected by agricultural nonpoint source pollution, appears to be very tolerant of siltation and nutrient enrichment (KDOW 1997b). Station 26-5 on Baughman's Fork

was dominated by *C. placentula* var. *euglypta* (12%) and *Nitzschia palea* (11%). The abundance of *N. palea* is likely indicative of organic pollution from upstream.

Station 12-7, on the UT to Baughman Fork just below the Blue Sky WWTP, received a DBI score of 1.8 and was classified as poor. The diatom community was dominated by *Navicula minima* (27 %) and *Nitzschia palea* (13%). In addition to these organic-pollution-tolerant diatoms, the algal community also included species of *Euglena, Ascoglena,* and *Chlamydomonas*, genera that were not collected from any of the other stream sites and were probably washed in from the WWTP lagoon. Station 26-8, upstream of the Blue Sky WWTP effluent, was classified as fair. The filamentous green alga *Cladophora glomerata* was abundant; and the *Cladophora* epiphytes *Rhoicosphenia curvata* (30%) and *G. angustatum* (15%) and the silt tolerant diatom *Surirella ovata* (10%) were the dominant diatoms. This is a very small, intermittent stream somewhat impacted by siltation, small package plants, and runoff from Interstate 75.

Station 26-6, on Baughman Fork upstream of the UT, should have been the control site to which 26-5 was compared. Unfortunately, the algal community there was decimated by a substance that had apparently been dumped into a sinkhole and entered Baughman Fork from a hillside spring. The benthic algae *Lemanea*, and *Batrachospermum* (Rhodophyta), and *Cladophora glomerata* attached to the limestone bedrock were dead and devoid of color. The total number of diatom taxa (22) was very low. The dominant diatoms, *N. minima* (58%) and *Navicula subminuscula* (20%), indicated agricultural nonpoint source pollution (siltation and nutrient enrichment), but these were represented by mostly dead diatom frustules. Other, less adherent diatoms, may have died out and drifted downstream, reducing the number and kinds of

diatoms that may have been present. Neither the contaminant nor its source were ever identified, but it was obviously very toxic.

The Rhodophyta are of special interest in this study because they tend to be present only in cleaner streams and were abundant in the Boone Creek drainage in both our 1992 survey and that of Neel in 1949-1950 (Neel 1968.) *Lemanea* was commonly found in all Boone Creek and Baughman Fork sites, and *Batrachospermum* was common in two Boone Creek and both Baughman Fork sites, although at Station 26-6 only dead filaments were found. Neither was found at Station 26-7 below the Blue Sky WWTP, but *Batrachospermum* was abundant above the WWTP, again pointing out the negative impact of the discharge on the algal flora.

MACROINVERTEBRATE DISCUSSION

During this study, the Boone Creek drainage supported a diverse assemblage of aquatic macroinvertebrates, with 167 taxa identified representing 20 orders (Appendix E). The Diptera (flies), composed primarily of the chironomidae, was the most diverse group. Those orders of aquatic insects generally considered sensitive to anthropogenic activities were well represented in the drainage, with the Ephemeroptera (15 taxa), Plecoptera (4 taxa), and Trichoptera (17 taxa) present.

Neel (1968) studied the macroinvertebrate fauna of the Boone Creek drainage. His study, which was actually conducted in 1949 and 1950, yielded 66 taxa. He collected only limited habitats, i.e., algal mats, bedrock areas, and cobble areas, from seven stations. However, his data also reveal a diverse macroinvertebrate fauna. His most diverse group was also the chironomids. The bulk of his collecting took place in the stream reach comparable to our station 26-2. Nearly

all of the 66 taxa reported were collected from this reach. During this study, the largest number of macroinvertebrate taxa were also taken from this section of the stream.

The Macroinvertebrate Bioassessment Index (MBI) from this study showed that the lower third of the drainage (Stations 26-1, 26-2, and 26-3) supported the greatest diversity of macroinvertebrates (Table 11). Concomitantly, it also supported the largest number of sensitive taxa as shown by the high Ephemeroptera-Plecoptera-Trichoptera (EPT) scores. All three of these sites had an MBI of excellent. The Hilsenhoff Biotic Index (HBI) values were low,

Table 11: Macroinvertebrate Bioassessment Index (MBI) Scores and Classifications for the Boone Creek Drainage

Metric	Stations						
	26-1	26-2	26-3	26-4	26-5	26-6	26-7
Taxa Richness (TR)	68(5)	81(5)	67(5)	81(5)	62(5)	42(3)	30(3)
Total Number of Individuals (TNI)	966(4)	1254(5)	1398(5)	1236(5)	1172(5)	460(1)	535(1)
Ephemeroptera-Plecoptera-Trichoptera (EPT) Index	25(5)	24(5)	21(5)	17(4)	13(3)	3(1)	0(1)
Hilsenhoff Biotic Index (HBI)	5.30(4)	5.35(4)	5.27(4)	6.14(3)	6.30(3)	6.22(3)	7.78(1)
Dominants in Common - 5 (DIC5)	2(3)	ND	3(5)	2(3)	2(3)	1(1)	0(1)
Percent Contribution of Dominants-5 (PCD5)	51.0(4)	56.9(4)	54.5(4)	46.4(5)	50.3(4)	72.4(3)	52.3(4)
Percent Community Similarity (PSc)	51.0(5)	ND	55.2(5)	34.3(3)	42.1(4)	23.0(2)	7.3(1)
MBI Score	4.29	4.60	4.71	4.00	3.86	2.00	1.71
MBI Classification	Excellent	Excellent	Excellent	Good/ Excellent	Good	Fair/ Poor	Poor

indicating that the community is not seriously impacted by watershed activities. In this stream reach, the riparian buffer zones are extensive and virtually completely forested, the stream is more entrenched in the landscape, thus reducing livestock access, and no point source discharger is found here.

The most upstream station on Boone Creek (26-4) had a MBI classification of good to excellent (Table 11). Taxa richness and EPT indices were excellent and good, respectively, at Station 26-4, while the HBI values were moderate.

Station 26-5, which was the lowermost station of Baughman Fork, had an MBI classification of good (Table 11). Taxa richness values were good, but EPT values were moderate, indicating a loss of sensitive species when compared to the Boone Creek sites. The HBI values were also moderate, again indicating that the community was being moderately impacted by watershed activities.

Station 26-6, the uppermost station on Baughman Fork, had an MBI classification of fair to poor (Table 11). During the sampling period, the pools in the upper portion of this site were littered with hundreds of dead leeches, crayfish, and fish. Macroinvertebrates were still present in the lower portion of the site in the riffles and pools, but the community was obviously under stress. An unknown toxicant had recently been discharged from a spring just upstream of this site. Taxa richness values were moderate, but were dominated by tolerant and facultative species. The sensitive species (EPT) were virtually eliminated; however, the HBI values remained in the moderate range.

An MBI classification of poor was determined for site 26-7 (Table 11) which is located on the UT to Baughman Fork below the commercial area and Blue Sky WWTP. Taxa richness values were moderate for that size stream (second order), but the EPT value was zero, indicating

that sensitive species were absent from this site. The HBI value was high, showing that the community was under substantial stress. The macroinvertebrate community was composed of organisms commonly found in streams impacted by domestic waste. The Blue Sky WWTP effluent appears to be the major impact in this stream reach.

In summary, the macroinvertebrate data indicate that the lower third of the Boone Creek drainage supports a diverse fauna of aquatic invertebrates including many sensitive species. The remainder of Boone Creek is somewhat less diverse but still supports a good community including some sensitive species. The Baughman Fork drainage was being impacted by both point and nonpoint pollution as indicated by the degraded macroinvertebrate communities.

FISH DISCUSSION

During this study, the Boone Creek drainage supported a moderately diverse fish fauna with 24 species representing six families being identified during this study (Appendix E). Several species sensitive to both point and nonpoint source pollution were observed in the drainage; however, a greater concentration of these species was found in the lower portion of the drainage (Table 12). Jones (1973) sampled one location on Boone Creek which was located one-half mile below Bogg's Fork. This location is comparable to KDOW site 26-2. Jones (1973) reported only six species: four centrachids, one catostomid, and one cyprinid. Three of the four centrarchids he reported (spotted bass, green sunfish, and bluegill) were not encountered during our study. However, we collected 11 species that Jones (1973) didn't report.

The Index of Biotic Integrity (IBI) was calculated for each of the seven sites sampled for fish during this study (Table 12). In general, most of the fish communities sampled received an IBI classification of fair. Two stations (26-2 and 26-4) received a good to fair classification,

while Station 26-7 received a fair to poor rating and site 26-3 received a poor classification. The lack of good and excellent IBI rankings indicates that the fish communities throughout the Boone Creek drainage have been degraded by watershed activities.

Table 12: Index of Biotic Integrity (IBI) Scores and Classifications for the Boone Creek Drainage

	Stations						
Metric	**26-1**	**26-2**	**26-3**	**26-4**	**26-5**	**26-7**	**26-8**
Total Species	15(5)	14(5)	11(3)	14(5)	14(5)	5(3)	7(5)
Total Number of Individuals	412(5)	259(5)	1215(5)	430(5)	449(5)	74(3)	266(5)
Total Darters and Sculpins	4(3)	3(3)	2(3)	2(3)	4(3)	2(3)	2(5)
Total Number Sunfish Species	2(3)	1(3)	2(3)	2(3)	NA	NA	NA
Total Headwater Species	NA	NA	NA	NA	2(5)	1(3)	2(5)
Total Sucker Species	1(3)	1(3)	1(3)	1(3)	NA	NA	NA
Total Minnow Species	NA	NA	NA	NA	6(5)	1(1)	4(3)
Total Intolerant Species	9(5)	8(5)	4(3)	5(3)	5(3)	0(1)	1(1)
Percent Omnivores Species	534(1)	30.9(3)	48.9(1)	61.4(1)	61.0(1)	5.4(5)	85.7(1)
Percent Insectivores Species	45.1(3)	61.4(5)	51.0(3)	38.1(3)	38.3(3)	94.6(5)	14.3(1)
Percent Tolerant Species	24.3(3)	72.0(3)	48.5(1)	35.6(3)	60.4(1)	6.8(5)	82.7(1)
Percent Pioneer Species	00.2(1)	0.00(1)	00.0(1)	0.00(1)	64.6(1)	33.8(3)	92.5(1)
Number Simple Lihophils	6(5)	5(3)	3(3)	4(3)	4(5)	1(1)	2(3)
Percent Delt Anomalies	00.0(5)	0.00(5)	0.00(5)	00.0(5)	0.00(5)	0.00(5)	0.00(5)
IBI Score	42(2.60)	46(3.00)	34(1.80)	38(3.07)	44(2.80)	38(2.00)	36(2.00)
IBI Classification	Fair	Good/ Fair	Poor	Good/ Fair	Fair	Fair	Fair/ Poor
NA-Not Applicable							

LITERATURE CITED

Bower, D. E. and W.H. Jackson. 1981. Drainage Areas of Streams at Selected Locations in Kentucky. U.S. Dept. Int., Geol. Surv., Louisville, KY. Open File Rept. 81-61

Jones, A.R. 1973. Inventory and classification of streams in the Kentucky River drainage. Ky. Dept. Fish & Wildl. Res., Bull No.56.

Karr, J.R. 1981. Assessment of biotic integrity using fish communities. Fisheries 6: 21-27.

Kentucky Division of Water (KDOW). 1986. Quality Assurance Guidelines. Biol Anal. Sec., Ky. Div. Water, Dept. KY Environ. Prot., Ky. Nat. Resour. Environ. Prot. Cab., Frankfort, KY.

Kentucky Division of Water (KDOW). 1993. Methods for Assessing Biological Integrity of Surface Waters. Ky. Dept. Environ. Prot., Ky. Div. Water, Water Qual. Br., Ecol. Sup. Sec., Frankfort, KY.

Kentucky Division of Water (KDOW) and National Park Service (NPS). 1992. Kentucky Rivers Assessment. National Park Service. Rivers, Trails, and Cons. Assist. Prog., Atlanta, GA.

Kentucky Division of Water, (KDOW). 1997a. Reference Reach Fish Community Report. Ky. Dept. Environ. Prot., Ky. Div. of Water, Ecol. Sup. Sec., Frankfort, KY. Tech. Rept. No. 52.

Kentucky Division of Water (KDOW) 1997b. Upper Salt River Biological and Water Quality Investigation. Ky. Dept. Environ. Prot., Ky. Div. of Water, Water Qual. Br., Ecol. Sup. Sec., Frankfort, KY.

Kentucky Nature Preserves Commission (KNPC). 1982. Recommendations for Kentucky's Outstanding Resource Water Classifications with Water Quality Criteria for Protection. Ky. Nat. Pres. Comm., Frankfort, KY.

Miller, Wihry, and Lee. 1975. The river basin water quality management plan for Kentucky-Kentucky River. Ky. Dept. Nat. Res. And Environ. Prot., Frankfort, KY.

Neel, J.K. 1951. Interrelations of certain physical and chemical features in a head-water limestone stream. Ecology, 32: 368-391.

Neel, J.K. 1968. Season succession of benthic algae and their macroinvertebrate residents in a head-water limestone stream. Ecology, 40: R10-R30.

Omernik, J. M. 1987. Ecoregions of the conterminous United States. Ann. Assoc. Amer., Geog., 77:118-125.

Plafkin, J. L., M. T. Barbour, K.D. Porter, S.K. Grass, and R.M. Huges. 1989. Rapid Bioassessment Protocols for Use in Streams and Rivers: Benthic Macroinvertebrates and Fish. U.S. EPA, Office of Water, EPA/444/4-89-001, Washington, D.C.

Quarterman, E. and R. L. Powell. 1978. Potential Ecological/Geological Natural Landmarks of the Interior Low Plateaus. U.S. Dept. Int., Nat. Park Ser., Washington, D. C.

Shackleford, B. 1988. Rapid Bioassessment of Lotic Macroinvertebrate Communities: Biocriteria Development. AK Dept. Poll. Contr. And Ecology, Little Rock, AK.

STORET. 1983-1993. United States Environmental Protection Agency Water Quality File. U.S. EPA, Office Reg. And Stds., Washington, D.C.

United States Environmental Protection Agency (US EPA). 1977. Guidelines for the Pollution Classifications of Great Lakes Harbor Sediments. U.S. EPA, Region V, Chicago, IL.

APPENDIX A

Site Information

SAMPLING STATIONS

Site ID: 04026001 (04026001) Stream: BOONE CREEK
Mile Point: 0.30 Drainage Area: 0.0 square miles
Order: 5 Ecoregion: INTERIOR PLATEAU
County: FAYETTE/CLARK LINE Basin: KENTUCKY
Waterbody: Map: 12-46 Ford
Latitude: 37-53-37 Longitude: 084-20-32
Location Description: 0.3 MI UPSTREAM OF MOUTH
Data Range: 05/06/92 - 06/05/92 Type: STREAM
Samples: Fish = 1 Invertebrates = 1 Diatoms = 1 (377)

Site ID: 04026002 (04026002) Stream: BOONE CREEK
Mile Point: 3.30 Drainage Area: 0.0 square miles
Order: 5 Ecoregion: INTERIOR PLATEAU
County: FAYETTE/CLARK LINE Basin: KENTUCKY
Waterbody: Map: 12-46 Ford
Latitude: 37-55-04 Longitude: 084-20-30
Location Description: GRIMES MILL ROAD BRIDGE
Data Range: 03/30/92 - 08/31/95 Type: STREAM
Samples: Fish = 2 Invertebrates = 1 Diatoms = 2 (378)

Site ID: 04026003 (04026003) Stream: BOONE CREEK
Mile Point: 6.50 Drainage Area: 0.0 square miles
Order: 5 Ecoregion: INTERIOR PLATEAU
County: FAYETTE/CLARK LINE Basin: KENTUCKY
Waterbody: Map: 12-46 Ford
Latitude: 37-56-08 Longitude: 084-20-10
Location Description: UPSTREAM OF KY RT. 418 BRIDGE APPROX. 0.4 MI.
Data Range: 04/30/92 - 04/30/92 Type: STREAM
Samples: Fish = 1 Invertebrates = 1 Diatoms = 1 (379)

Site ID: 04026004 (04026004) Stream: BOONE CREEK
Mile Point: 12.63 Drainage Area: 0.0 square miles
Order: 4 Ecoregion: INTERIOR PLATEAU
County: FAYETTE/CLARK LINE Basin: KENTUCKY
Waterbody: Map: 12-46 Ford
Latitude: 37-58-18 Longitude: 084-19-21
Location Description: AT SULPHUR WELL ROAD BRIDGE
Data Range: 04/29/92 - 04/29/92 Type: STREAM
Samples: Fish = 1 Invertebrates = 1 Diatoms = 1 (380)

Site ID: 04026005 (04026005) Stream: BAUGHMAN FORK
Mile Point: 0.90 Drainage Area: 0.0 square miles
Order: 4 Ecoregion: INTERIOR PLATEAU
County: FAYETTE Basin: KENTUCKY
Waterbody: Map: 12-46 Ford
Latitude: 37-57-04 Longitude: 084-20-53
Location Description: GENTRY RD. BRIDGE
Data Range: 05/06/92 - 05/06/92 Type: STREAM
Samples: Fish = 1 Invertebrates = 1 Diatoms = 1 (381)

05/02/97

SAMPLING STATIONS

Site ID: 04026006 (04026006) Stream: BAUGHMAN FORK
Mile Point: 3.00 Drainage Area: 0.0 square miles
Order: 4 Ecoregion: INTERIOR PLATEAU
County: FAYETTE Basin: KENTUCKY
Waterbody: Map: 12-46 Ford
Latitude: 37-58-14 Longitude: 084-21-48
Location Description: AT CLEVELAND ROAD BRIDGE
Data Range: 04/29/92 - 04/29/92 Type: STREAM
Samples: Fish = 1 Invertebrates = 1 Diatoms = 1 (382)

Site ID: 04026007 (04026007) Stream: BAUGHMAN FORK UT
Mile Point: 0.50 Drainage Area: 0.0 square miles
Order: 2 Ecoregion: INTERIOR PLATEAU
County: FAYETTE Basin: KENTUCKY
Waterbody: Map: 12-46 Ford
Latitude: 37-57-55 Longitude: 084-21-58
Location Description: DOWNSTREAM OF BLUE SKY WWTP
Data Range: 04/29/92 - 04/29/92 Type: STREAM
Samples: Fish = 1 Invertebrates = 1 Diatoms = 1 (383)

Site ID: 04026008 (04026008) Stream: BAUGHMAN FORK UT
Mile Point: 0.85 Drainage Area: 0.0 square miles
Order: 2 Ecoregion: INTERIOR PLATEAU
County: FAYETTE Basin: KENTUCKY
Waterbody: 05100205-054 Map: 12-45 Coletown
Latitude: 37-57-55 Longitude: 084-22-31
Location Description: ABOVE BLUE SKY WWTP
Data Range: 04/29/92 - 04/29/92 Type: STREAM
Samples: Fish = 0 Invertebrates = 0 Diatoms = 1 (465)

Site ID: 04026009 (04026009) Stream: BLUE SKY WWTP EFFLUENT
Mile Point: 0.80 Drainage Area: 0.0 square miles
Order: 1 Ecoregion: INTERIOR PLATEAU
County: FAYETTE Basin: KENTUCKY
Waterbody: 05100205-054 Map: 12-46 Ford
Latitude: 37-57-54 Longitude: 084-22-28
Location Description: PIPE FROM LAGOON ON BAUGHMAN FORK UT
Data Range: 12/31/99 - 01/01/01 Type: STREAM
Samples: Fish = 0 Invertebrates = 0 Diatoms = 0 (812)

---<9>---

APPENDIX B

Boone Creek Physicochemical Data

PHILLIP J. SHEPHERD
SECRETARY

BRERETON C. JONES
GOVERNOR

COMMONWEALTH OF KENTUCKY
NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
FRANKFORT OFFICE PARK
18 REILLY ROAD
FRANKFORT, KENTUCKY 40601

July 27, 1992

Division of Environmental Services
Report Number: A20-01139
Sample Number: 9202187

TO: Division of Water
Frankfort Office Park
Frankfort, Kentucky 40601

RE: Boone Creek Drainage

ATTN: Michael Mills

County: Fayette & Clark

Facility: DOW#04026001

Collected by: Skip Call

Date: 04/15/92 **Time:** 1400

Delivered by: Skip Call

Date: 04/16/92 **Time:** 1100

Received by: Polly Ellis

Date: 04/16/92 **Time:** 1100

Sample Matrix: Water

Collection Method: Grab

Sample Identification: Boone Creek near mouth

REPORT OF ANALYSIS

TOTAL CONSTITUENTS	CONCENTRATION
Acidity	ND @ 0.1 mg/L
Alkalinity	171 mg/L
BOD-5	1.2 mg/L
Chloride	4.7 mg/L
Conductivity	405 µmho/cm
Fluoride	0.22 mg/L
Hardness, total	201 mg/L
pH	8.3 S.U.
Total Suspended Solids	3 mg/L
Total Dissolved Solids	228 mg/L
Sulfate	27.2 mg/L
Organic Carbon	1.6 mg/L
Turbidity	ND @ 1 NTU
Ammonia-Nitrogen	ND @ 0.05 mg/L
Total Kjeldhal Nitrogen	0.085 mg/L
Nitrate	1.86 mg/L
Phosphorus, total	0.220 mg/L
Calcium	78.6 mg/L
Magnesium	5.8 mg/L
Potassium	1.21 mg/L
Sodium	3.03 mg/L
Aluminum	ND @ 0.023 mg/L
Arsenic	ND @ 0.002 mg/L
Barium	0.014 mg/L

TOTAL CONSTITUENTS	CONCENTRATION
Beryllium	ND @ 0.002 mg/L
Cadmium	ND @ 0.001 mg/L
Chromium	ND @ 0.001 mg/L
Copper	0.001 mg/L
Iron	0.050 mg/L
Lead	ND @ 0.002 mg/L
Manganese	0.011 mg/L
Mercury	ND @ 0.0001 mg/L
Nickel	ND @ 0.002 mg/L
Selenium	ND @ 0.002 mg/L
Silver	ND @ 0.001 mg/L
Zinc	ND @ 0.003 mg/L
Dichlorodifluoromethane	ND @ 0.005 mg/L
Chloromethane	ND @ 0.005 mg/L
Vinyl Chloride	ND @ 0.005 mg/L
Bromomethane	ND @ 0.005 mg/L
Chloroethane	ND @ 0.005 mg/L
Trichlorofluoromethane	ND @ 0.005 mg/L
1,1-Dichloroethene	ND @ 0.005 mg/L
Acetone	0.003 mg/L[B,J]
Carbon Disulfide	ND @ 0.010 mg/L
Dichloromethane (Methylene Chloride)	0.002 mg/L[B,J]
trans-1,2-Dichloroethene	ND @ 0.005 mg/L
1,1-Dichloroethane	ND @ 0.005 mg/L
Vinyl Acetate	ND @ 0.010 mg/L
2-Butanone (Methyl Ethyl Ketone)	ND @ 0.010 mg/L
2,2-Dichloropropane	ND @ 0.005 mg/L
cis-1,2-Dichloroethene	ND @ 0.005 mg/L
Bromochloromethane	ND @ 0.005 mg/L
Chloroform	ND @ 0.005 mg/L
1,1,1-Trichloroethane	ND @ 0.005 mg/L
Carbon Tetrachloride	ND @ 0.005 mg/L
1,1-Dichloropropene	ND @ 0.005 mg/L
Benzene	ND @ 0.005 mg/L
1,2-Dichloroethane	ND @ 0.005 mg/L
Trichloroethene	ND @ 0.005 mg/L
1,2-Dichloropropane	ND @ 0.005 mg/L
Dibromomethane	ND @ 0.005 mg/L
Bromodichloromethane	ND @ 0.005 mg/L
cis-1,3-Dichloropropene	ND @ 0.005 mg/L
4-Methyl-2-pentanone (MIBK)	ND @ 0.010 mg/L
Toluene	ND @ 0.005 mg/L
trans 1,3-Dichloropropene	ND @ 0.005 mg/L
1,1,2-Trichloroethane	ND @ 0.005 mg/L
Tetrachloroethene	ND @ 0.005 mg/L
1,3-Dichloropropane	ND @ 0.005 mg/L
Dibromochloromethane	ND @ 0.005 mg/L
2-Hexanone (Methyl butyl ketone)	ND @ 0.010 mg/L
1,2-Dibromoethane (EDB)	ND @ 0.005 mg/L
Chlorobenzene	ND @ 0.005 mg/L
1-Chlorohexane	ND @ 0.005 mg/L

TOTAL CONSTITUENTS	CONCENTRATION
Ethyl Benzene	ND @ 0.005 mg/L
1,1,1,2-Tetrachloroethane	ND @ 0.005 mg/L
1,2-Xylene	ND @ 0.005 mg/L
1,3-Xylene & 1,4-Xylene	ND @ 0.005 mg/L
Styrene	ND @ 0.005 mg/L
Bromoform	ND @ 0.005 mg/L
Isopropylbenzene (Cumene)	ND @ 0.005 mg/L
Bromobenzene	ND @ 0.005 mg/L
1,2,3-Trichloropropane	ND @ 0.005 mg/L
1,1,2,2-Tetrachloroethane	ND @ 0.005 mg/L
n-Propylbenzene	ND @ 0.005 mg/L
2-Chlorotoluene	ND @ 0.005 mg/L
3-Chlorotoluene	ND @ 0.005 mg/L
4-Chlorotoluene	ND @ 0.005 mg/L
1,3,5-Trimethylbenzene	ND @ 0.005 mg/L
tert-Butylbenzene	ND @ 0.005 mg/L
1,2,4-Trimethylbenzene	ND @ 0.005 mg/L
sec-Butylbenzene	ND @ 0.005 mg/L
Isopropyl toluene (Cymene)	ND @ 0.005 mg/L
n-Butylbenzene	ND @ 0.005 mg/L
1,2-Dibromo-3-chloropropane (DBCP)	ND @ 0.005 mg/L
Hexachlorobutadiene	ND @ 0.005 mg/L
1,2,3-Trichlorobenzene	ND @ 0.005 mg/L
Phenol	ND @ 0.01 mg/L
Aniline	ND @ 0.01 mg/L
Bis-(2-Chloroethyl)ether	ND @ 0.01 mg/L
2-Chlorophenol	ND @ 0.01 mg/L
1,3-Dichlorobenzene	ND @ 0.01 mg/L
1,4-Dichlorobenzene	ND @ 0.01 mg/L
Benzyl Alcohol	ND @ 0.01 mg/L
1,2-Dichlorobenzene	ND @ 0.01 mg/L
2-Methylphenol	ND @ 0.01 mg/L
4-Methylphenol	ND @ 0.01 mg/L
Bis-(2-Chloroisopropyl)ether	ND @ 0.01 mg/L
N-Nitroso-di-n-propylamine	ND @ 0.01 mg/L
Hexachloroethane	ND @ 0.01 mg/L
Nitrobenzene	ND @ 0.01 mg/L
Isophorone	ND @ 0.01 mg/L
2-Nitrophenol	ND @ 0.01 mg/L
2,4-Dimethylphenol	ND @ 0.01 mg/L
Bis-(2-Chloroethoxy)methane	ND @ 0.01 mg/L
Benzoic Acid	ND @ 0.051 mg/L
2,4-Dichlorophenol	ND @ 0.01 mg/L
1,2,4-Trichlorobenzene	ND @ 0.01 mg/L
Naphthalene	ND @ 0.01 mg/L
4-Chloroaniline	ND @ 0.01 mg/L
1,1,2,3,4,4-Hexachloro-1,3-butadiene	ND @ 0.01 mg/L
4-Chloro-3-methylphenol	ND @ 0.01 mg/L
2-Methylnaphthalene	ND @ 0.01 mg/L
1,2,3,4,5,5-Hexachloro-1,3-cyclopentadiene	ND @ 0.01 mg/L
2,4,6-Trichlorophenol	ND @ 0.01 mg/L

TOTAL CONSTITUENTS	CONCENTRATION
2,4,5-Trichlorophenol	ND @ 0.01 mg/L
2-Chloronaphthalene	ND @ 0.01 mg/L
2-Nitroaniline	ND @ 0.051 mg/L
Dimethyl Phthalate	ND @ 0.01 mg/L
Acenaphthylene	ND @ 0.01 mg/L
2,6-Dinitrotoluene	ND @ 0.01 mg/L
3-Nitroaniline	ND @ 0.051 mg/L
Acenaphthene	ND @ 0.01 mg/L
2,4-Dinitrophenol	ND @ 0.051 mg/L
4-Nitrophenol	ND @ 0.051 mg/L
Dibenzofuran	ND @ 0.01 mg/L
2,4-Dinitrotoluene	ND @ 0.01 mg/L
Diethyl Phthalate	ND @ 0.01 mg/L
Fluorene	ND @ 0.01 mg/L
4-Chlorophenyl phenyl ether	ND @ 0.01 mg/L
4-Nitroaniline	ND @ 0.051 mg/L
2-Methyl-4,6-Dinitrophenol	ND @ 0.051 mg/L
N-Nitrosodiphenylamine	ND @ 0.01 mg/L
Diphenyl Amine	ND @ 0.01 mg/L
Azobenzene	ND @ 0.01 mg/L
4-Bromophenyl phenyl ether	ND @ 0.01 mg/L
Hexachlorobenzene	ND @ 0.01 mg/L
Pentachlorophenol	ND @ 0.051 mg/L
Phenanthrene	ND @ 0.01 mg/L
Anthracene	ND @ 0.01 mg/L
Carbazole	ND @ 0.01 mg/L
Dibutyl Phthalate	ND @ 0.01 mg/L
Fluoranthene	ND @ 0.01 mg/L
Benzidine	ND @ 0.051 mg/L
Pyrene	ND @ 0.01 mg/L
Butyl Benzyl Phthalate	ND @ 0.01 mg/L
3,3'-Dichlorobenzidine	ND @ 0.02 mg/L
Benzo(A)Anthracene	ND @ 0.01 mg/L
Chrysene	ND @ 0.01 mg/L
Bis(2-Ethylhexyl)Phthalate	0.003 mg/L[B,J]
Dioctylphthalate	ND @ 0.01 mg/L
Benzo(B)Fluoranthene	ND @ 0.01 mg/L
Benzo(K)Fluoranthene	ND @ 0.01 mg/L
Benzo(A)Pyrene	ND @ 0.01 mg/L
Indeno(1,2,3-C,D)Pyrene	ND @ 0.01 mg/L
Dibenzo(A,H)Anthracene	ND @ 0.01 mg/L
Benzo(G,H,I)Perylene	ND @ 0.01 mg/L

ND = Not Detected, B = Analyte Found In Blank, J = Estimated Value

This report has been prepared and reviewed by personnel within the Division of Environmental Services. It has been approved for release.

for William E. Davis, Director
Division of Environmental Services

PHILLIP J. SHEPHERD
SECRETARY

BRERETON C. JONES
GOVERNOR

COMMONWEALTH OF KENTUCKY
NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
FRANKFORT OFFICE PARK
18 REILLY ROAD
FRANKFORT, KENTUCKY 40601

August 12, 1992

Division of Environmental Services
Report Number: A20-01140
Sample Number: 9202188

TO: Division of Water
Frankfort Office Park
Frankfort, Kentucky 40601

RE: Boone Creek Drainage

ATTN: Michael Mills

County: Fayette & Clark

Facility: DOW#04026002

Collected by: Skip Call **Date:** 04/15/92 **Time:** 1215

Delivered by: Skip Call **Date:** 04/16/92 **Time:** 1100

Received by: Polly Ellis **Date:** 04/16/92 **Time:** 1100

Sample Matrix: Water **Collection Method:** Grab

Sample Identification: Boone Creek / Grimes Mill

REPORT OF ANALYSIS

TOTAL CONSTITUENTS	CONCENTRATION
Acidity	ND @ 0.1 mg/L
Alkalinity	167 mg/L
BOD-5	1.4 mg/L
Chloride	4.9 mg/L
Conductivity	397 µmho/cm
Fluoride	0.23 mg/L
Hardness, total	188 mg/L
pH	8.4 S.U.
Total Suspended Solids	7 mg/L
Total Dissolved Solids	236 mg/L
Sulfate	26.4 mg/L
Organic Carbon	1.8 mg/L
Turbidity	1.5 NTU
Ammonia-Nitrogen	ND @ 0.05 mg/L
Total Kjeldhal Nitrogen	0.127 mg/L
Nitrate	2.53 mg/L
Phosphorus, total	0.217 mg/L
Calcium	77.1 mg/L
Magnesium	5.80 mg/L
Potassium	1.22 mg/L
Sodium	3.04 mg/L
Aluminum	ND @ 0.023 mg/L
Arsenic	ND @ 0.002 mg/L
Barium	0.014 mg/L

TOTAL CONSTITUENTS	CONCENTRATION
Beryllium	ND @ 0.007 mg/L
Cadmium	ND @ 0.001 mg/L
Chromium	ND @ 0.001 mg/L
Copper	0.001 mg/L
Iron	0.045 mg/L
Lead	ND @ 0.002 mg/L
Manganese	0.010 mg/L
Mercury	Cancelled[T]
Nickel	ND @ 0.003 mg/L
Selenium	ND @ 0.002 mg/L
Silver	ND @ 0.001 mg/L
Zinc	ND @ 0.003 mg/L
Dichlorodifluoromethane	ND @ 0.005 mg/L
Chloromethane	ND @ 0.005 mg/L
Vinyl Chloride	ND @ 0.005 mg/L
Bromomethane	ND @ 0.005 mg/L
Chloroethane	ND @ 0.005 mg/L
Trichlorofluoromethane	ND @ 0.005 mg/L
1,1-Dichloroethene	ND @ 0.005 mg/L
Acetone	0.003 mg/L[B,J]
Carbon Disulfide	0.001 mg/L[J]
Dichloromethane (Methylene Chloride)	0.011 mg/L[B]
trans-1,2-Dichloroethene	ND @ 0.005 mg/L
1,1-Dichloroethane	ND @ 0.005 mg/L
Vinyl Acetate	ND @ 0.010 mg/L
2-Butanone (Methyl Ethyl Ketone)	ND @ 0.010 mg/L
2,2-Dichloropropane	ND @ 0.005 mg/L
cis-1,2-Dichloroethene	ND @ 0.005 mg/L
Bromochloromethane	ND @ 0.005 mg/L
Chloroform	ND @ 0.005 mg/L
1,1,1-Trichloroethane	ND @ 0.005 mg/L
Carbon Tetrachloride	ND @ 0.005 mg/L
1,1-Dichloropropene	ND @ 0.005 mg/L
Benzene	ND @ 0.005 mg/L
1,2-Dichloroethane	ND @ 0.005 mg/L
Trichloroethene	ND @ 0.005 mg/L
1,2-Dichloropropane	ND @ 0.005 mg/L
Dibromomethane	ND @ 0.005 mg/L
Bromodichloromethane	ND @ 0.005 mg/L
cis-1,3-Dichloropropene	ND @ 0.005 mg/L
4-Methyl-2-pentanone (MIBK)	ND @ 0.010 mg/L
Toluene	ND @ 0.005 mg/L
trans 1,3-Dichloropropene	ND @ 0.005 mg/L
1,1,2-Trichloroethane	ND @ 0.005 mg/L
Tetrachloroethene	ND @ 0.005 mg/L
1,3-Dichloropropane	ND @ 0.005 mg/L
Dibromochloromethane	ND @ 0.005 mg/L
2-Hexanone (Methyl butyl ketone)	ND @ 0.010 mg/L
1,2-Dibromoethane (EDB)	ND @ 0.005 mg/L
Chlorobenzene	ND @ 0.005 mg/L
1-Chlorohexane	ND @ 0.005 mg/L

TOTAL CONSTITUENTS	CONCENTRATION
Ethyl Benzene	ND @ 0.005 mg/L
1,1,1,2-Tetrachloroethane	ND @ 0.005 mg/L
1,2-Xylene	ND @ 0.005 mg/L
1,3-Xylene & 1,4-Xylene	ND @ 0.005 mg/L
Styrene	ND @ 0.005 mg/L
Bromoform	ND @ 0.005 mg/L
Isopropylbenzene (Cumene)	ND @ 0.005 mg/L
Bromobenzene	ND @ 0.005 mg/L
1,2,3-Trichloropropane	ND @ 0.005 mg/L
1,1,2,2-Tetrachloroethane	ND @ 0.005 mg/L
n-Propylbenzene	ND @ 0.005 mg/L
2-Chlorotoluene	ND @ 0.005 mg/L
3-Chlorotoluene	ND @ 0.005 mg/L
4-Chlorotoluene	ND @ 0.005 mg/L
1,3,5-Trimethylbenzene	ND @ 0.005 mg/L
tert-Butylbenzene	ND @ 0.005 mg/L
1,2,4-Trimethylbenzene	ND @ 0.005 mg/L
sec-Butylbenzene	ND @ 0.005 mg/L
Isopropyl toluene (Cymene)	ND @ 0.005 mg/L
n-Butylbenzene	ND @ 0.005 mg/L
1,2-Dibromo-3-chloropropane (DBCP)	ND @ 0.005 mg/L
Hexachlorobutadiene	ND @ 0.005 mg/L
1,2,3-Trichlorobenzene	ND @ 0.005 mg/L
Phenol	ND @ 0.01 mg/L
Aniline	ND @ 0.01 mg/L
Bis-(2-Chloroethyl)ether	ND @ 0.01 mg/L
2-Chlorophenol	ND @ 0.01 mg/L
1,3-Dichlorobenzene	ND @ 0.01 mg/L
1,4-Dichlorobenzene	ND @ 0.01 mg/L
Benzyl Alcohol	ND @ 0.01 mg/L
1,2-Dichlorobenzene	ND @ 0.01 mg/L
2-Methylphenol	ND @ 0.01 mg/L
4-Methylphenol	ND @ 0.01 mg/L
Bis-(2-Chloroisopropyl)ether	ND @ 0.01 mg/L
N-Nitroso-di-n-propylamine	ND @ 0.01 mg/L
Hexachloroethane	ND @ 0.01 mg/L
Nitrobenzene	ND @ 0.01 mg/L
Isophorone	ND @ 0.01 mg/L
2-Nitrophenol	ND @ 0.01 mg/L
2,4-Dimethylphenol	ND @ 0.01 mg/L
Bis-(2-Chloroethoxy)methane	ND @ 0.01 mg/L
Benzoic Acid	ND @ 0.051 mg/L
2,4-Dichlorophenol	ND @ 0.01 mg/L
1,2,4-Trichlorobenzene	ND @ 0.01 mg/L
Naphthalene	ND @ 0.01 mg/L
4-Chloroaniline	ND @ 0.01 mg/L
1,1,2,3,4,4-Hexachloro-1,3-butadiene	ND @ 0.01 mg/L
4-Chloro-3-methylphenol	ND @ 0.01 mg/L
2-Methylnaphthalene	ND @ 0.01 mg/L
1,2,3,4,5,5-Hexachloro-1,3-cyclopentadiene	ND @ 0.01 mg/L
2,4,6-Trichlorophenol	ND @ 0.01 mg/L

TOTAL CONSTITUENTS	CONCENTRATION
2,4,5-Trichlorophenol	ND @ 0.01 mg/L
2-Chloronaphthalene	ND @ 0.01 mg/L
2-Nitroaniline	ND @ 0.051 mg/L
Dimethyl Phthalate	ND @ 0.01 mg/L
Acenaphthylene	ND @ 0.01 mg/L
2,6-Dinitrotoluene	ND @ 0.01 mg/L
3-Nitroaniline	ND @ 0.051 mg/L
Acenaphthene	ND @ 0.01 mg/L
2,4-Dinitrophenol	ND @ 0.051 mg/L
4-Nitrophenol	ND @ 0.051 mg/L
Dibenzofuran	ND @ 0.01 mg/L
2,4-Dinitrotoluene	ND @ 0.01 mg/L
Diethyl Phthalate	ND @ 0.01 mg/L
Fluorene	ND @ 0.01 mg/L
4-Chlorophenyl phenyl ether	ND @ 0.01 mg/L
4-Nitroaniline	ND @ 0.051 mg/L
2-Methyl-4,6-Dinitrophenol	ND @ 0.051 mg/L
N-Nitrosodiphenylamine	ND @ 0.01 mg/L
Diphenyl Amine	ND @ 0.01 mg/L
Azobenzene	ND @ 0.01 mg/L
4-Bromophenyl phenyl ether	ND @ 0.01 mg/L
Hexachlorobenzene	ND @ 0.01 mg/L
Pentachlorophenol	ND @ 0.051 mg/L
Phenanthrene	ND @ 0.01 mg/L
Anthracene	ND @ 0.01 mg/L
Carbazole	ND @ 0.01 mg/L
Dibutyl Phthalate	ND @ 0.01 mg/L
Fluoranthene	ND @ 0.01 mg/L
Benzidine	ND @ 0.051 mg/L
Pyrene	ND @ 0.01 mg/L
Butyl Benzyl Phthalate	ND @ 0.01 mg/L
3,3'-Dichlorobenzidine	ND @ 0.02 mg/L
Benzo(A)Anthracene	ND @ 0.01 mg/L
Chrysene	ND @ 0.01 mg/L
Bis(2-Ethylhexyl)Phthalate	ND @ 0.01 mg/L[B]
Dioctylphthalate	ND @ 0.01 mg/L
Benzo(B)Fluoranthene	ND @ 0.01 mg/L
Benzo(K)Fluoranthene	ND @ 0.01 mg/L
Benzo(A)Pyrene	ND @ 0.01 mg/L
Indeno(1,2,3-C,D)Pyrene	ND @ 0.01 mg/L
Dibenzo(A,H)Anthracene	ND @ 0.01 mg/L
Benzo(G,H,I)Perylene	ND @ 0.01 mg/L

ND = Not Detected, B = Analyte Found In Blank, J = Estimated Value
T = Exceeded Holding Time

This report has been prepared and reviewed by personnel within the Division of Environmental Services. It has been approved for release.

William E. Davis, Director
Division of Environmental Services

PHILLIP J. SHEPHERD
SECRETARY

BRERETON C. JONES
GOVERNOR

COMMONWEALTH OF KENTUCKY
NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
FRANKFORT OFFICE PARK
18 REILLY ROAD
FRANKFORT, KENTUCKY 40601

July 27, 1992

Division of Environmental Services
Report Number: A20-01141
Sample Number: 9202189

TO: Division of Water
Frankfort Office Park
Frankfort, Kentucky 40601

RE: Boone Creek Drainage

ATTN: Michael Mills

County: Fayette & Clark

Facility: DOW#04026003

Collected by: Skip Call **Date:** 04/15/92 **Time:** 1125

Delivered by: Skip Call **Date:** 04/16/92 **Time:** 1100

Received by: Polly Ellis **Date:** 04/16/92 **Time:** 1100

Sample Matrix: Water **Collection Method:** Grab

Sample Identification: Boone Creek / KY 418 Bridge

REPORT OF ANALYSIS

TOTAL CONSTITUENTS	CONCENTRATION
Acidity	0.13 mg/L
Alkalinity	168 mg/L
BOD-5	1.6 mg/L
Chloride	ND @ 0.1 mg/L
Conductivity	400 µmho/cm
Fluoride	0.22 mg/L
Hardness, total	165 mg/L
pH	8.2 S.U.
Total Suspended Solids	8 mg/L
Total Dissolved Solids	234 mg/L
Sulfate	27.2 mg/L
Organic Carbon	1.8 mg/L
Turbidity	2.5 NTU
Ammonia-Nitrogen	ND @ 0.05 mg/L
Total Kjeldhal Nitrogen	0.261 mg/L
Nitrate	2.72 mg/L
Phosphorus, total	0.233 mg/L
Calcium	80.7 mg/L
Magnesium	6.13 mg/L
Potassium	1.28 mg/L
Sodium	3.17 mg/L
Aluminum	0.084 mg/L
Arsenic	ND @ 0.002 mg/L
Barium	0.016 mg/L

TOTAL CONSTITUENTS	CONCENTRATION
Beryllium	ND @ 0.002 mg/L
Cadmium	ND @ 0.001 mg/L
Chromium	0.002 mg/L
Copper	0.001 mg/L
Iron	0.131 mg/L
Lead	0.003 mg/L
Manganese	0.022 mg/L
Mercury	ND @ 0.0001 mg/L
Nickel	ND @ 0.002 mg/L
Selenium	ND @ 0.002 mg/L
Silver	ND @ 0.001 mg/L
Zinc	ND @ 0.003 mg/L
Dichlorodifluoromethane	ND @ 0.005 mg/L
Chloromethane	ND @ 0.005 mg/L
Vinyl Chloride	ND @ 0.005 mg/L
Bromomethane	ND @ 0.005 mg/L
Chloroethane	ND @ 0.005 mg/L
Trichlorofluoromethane	ND @ 0.005 mg/L
1,1-Dichloroethene	ND @ 0.005 mg/L
Acetone	ND @ 0.010 mg/L[B]
Carbon Disulfide	0.003 mg/L[J]
Dichloromethane (Methylene Chloride)	0.008 mg/L[B]
trans-1,2-Dichloroethene	ND @ 0.005 mg/L
1,1-Dichloroethane	ND @ 0.005 mg/L
Vinyl Acetate	ND @ 0.010 mg/L
2-Butanone (Methyl Ethyl Ketone)	ND @ 0.010 mg/L
2,2-Dichloropropane	ND @ 0.005 mg/L
cis-1,2-Dichloroethene	ND @ 0.005 mg/L
Bromochloromethane	ND @ 0.005 mg/L
Chloroform	ND @ 0.005 mg/L
1,1,1-Trichloroethane	ND @ 0.005 mg/L
Carbon Tetrachloride	ND @ 0.005 mg/L
1,1-Dichloropropene	ND @ 0.005 mg/L
Benzene	ND @ 0.005 mg/L
1,2-Dichloroethane	ND @ 0.005 mg/L
Trichloroethene	ND @ 0.005 mg/L
1,2-Dichloropropane	ND @ 0.005 mg/L
Dibromomethane	ND @ 0.005 mg/L
Bromodichloromethane	ND @ 0.005 mg/L
cis-1,3-Dichloropropene	ND @ 0.005 mg/L
4-Methyl-2-pentanone (MIBK)	ND @ 0.010 mg/L
Toluene	ND @ 0.005 mg/L
trans 1,3-Dichloropropene	ND @ 0.005 mg/L
1,1,2-Trichloroethane	ND @ 0.005 mg/L
Tetrachloroethene	ND @ 0.005 mg/L
1,3-Dichloropropane	ND @ 0.005 mg/L
Dibromochloromethane	ND @ 0.005 mg/L
2-Hexanone (Methyl butyl ketone)	ND @ 0.010 mg/L
1,2-Dibromoethane (EDB)	ND @ 0.005 mg/L
Chlorobenzene	ND @ 0.005 mg/L
1-Chlorohexane	ND @ 0.005 mg/L

TOTAL CONSTITUENTS	CONCENTRATION
Ethyl Benzene	ND @ 0.005 mg/L
1,1,1,2-Tetrachloroethane	ND @ 0.005 mg/L
1,2-Xylene	ND @ 0.005 mg/L
1,3-Xylene & 1,4-Xylene	ND @ 0.005 mg/L
Styrene	ND @ 0.005 mg/L
Bromoform	ND @ 0.005 mg/L
Isopropylbenzene (Cumene)	ND @ 0.005 mg/L
Bromobenzene	ND @ 0.005 mg/L
1,2,3-Trichloropropane	ND @ 0.005 mg/L
1,1,2,2-Tetrachloroethane	ND @ 0.005 mg/L
n-Propylbenzene	ND @ 0.005 mg/L
2-Chlorotoluene	ND @ 0.005 mg/L
3-Chlorotoluene	ND @ 0.005 mg/L
4-Chlorotoluene	ND @ 0.005 mg/L
1,3,5-Trimethylbenzene	ND @ 0.005 mg/L
tert-Butylbenzene	ND @ 0.005 mg/L
1,2,4-Trimethylbenzene	ND @ 0.005 mg/L
sec-Butylbenzene	ND @ 0.005 mg/L
Isopropyl toluene (Cymene)	ND @ 0.005 mg/L
n-Butylbenzene	ND @ 0.005 mg/L
1,2-Dibromo-3-chloropropane (DBCP)	ND @ 0.005 mg/L
Hexachlorobutadiene	ND @ 0.005 mg/L
1,2,3-Trichlorobenzene	ND @ 0.005 mg/L
Phenol	ND @ 0.01 mg/L
Aniline	ND @ 0.01 mg/L
Bis-(2-Chloroethyl)ether	ND @ 0.01 mg/L
2-Chlorophenol	ND @ 0.01 mg/L
1,3-Dichlorobenzene	ND @ 0.01 mg/L
1,4-Dichlorobenzene	ND @ 0.01 mg/L
Benzyl Alcohol	ND @ 0.01 mg/L
1,2-Dichlorobenzene	ND @ 0.01 mg/L
2-Methylphenol	ND @ 0.01 mg/L
4-Methylphenol	ND @ 0.01 mg/L
Bis-(2-Chloroisopropyl)ether	ND @ 0.01 mg/L
N-Nitroso-di-n-propylamine	ND @ 0.01 mg/L
Hexachloroethane	ND @ 0.01 mg/L
Nitrobenzene	ND @ 0.01 mg/L
Isophorone	ND @ 0.01 mg/L
2-Nitrophenol	ND @ 0.01 mg/L
2,4-Dimethylphenol	ND @ 0.01 mg/L
Bis-(2-Chloroethoxy)methane	ND @ 0.01 mg/L
Benzoic Acid	ND @ 0.05 mg/L
2,4-Dichlorophenol	ND @ 0.01 mg/L
1,2,4-Trichlorobenzene	ND @ 0.01 mg/L
Naphthalene	ND @ 0.01 mg/L
4-Chloroaniline	ND @ 0.01 mg/L
1,1,2,3,4,4-Hexachloro-1,3-butadiene	ND @ 0.01 mg/L
4-Chloro-3-methylphenol	ND @ 0.01 mg/L
2-Methylnaphthalene	ND @ 0.01 mg/L
1,2,3,4,5,5-Hexachloro-1,3-cyclopentadiene	ND @ 0.01 mg/L
2,4,6-Trichlorophenol	ND @ 0.01 mg/L

TOTAL CONSTITUENTS	CONCENTRATION
2,4,5-Trichlorophenol	ND @ 0.01 mg/L
2-Chloronaphthalene	ND @ 0.01 mg/L
2-Nitroaniline	ND @ 0.05 mg/L
Dimethyl Phthalate	ND @ 0.01 mg/L
Acenaphthylene	ND @ 0.01 mg/L
2,6-Dinitrotoluene	ND @ 0.01 mg/L
3-Nitroaniline	ND @ 0.05 mg/L
Acenaphthene	ND @ 0.01 mg/L
2,4-Dinitrophenol	ND @ 0.05 mg/L
4-Nitrophenol	ND @ 0.05 mg/L
Dibenzofuran	ND @ 0.01 mg/L
2,4-Dinitrotoluene	ND @ 0.01 mg/L
Diethyl Phthalate	ND @ 0.01 mg/L
Fluorene	ND @ 0.01 mg/L
4-Chlorophenyl phenyl ether	ND @ 0.01 mg/L
4-Nitroaniline	ND @ 0.05 mg/L
2-Methyl-4,6-Dinitrophenol	ND @ 0.05 mg/L
N-Nitrosodiphenylamine	ND @ 0.01 mg/L
Diphenyl Amine	ND @ 0.01 mg/L
Azobenzene	ND @ 0.01 mg/L
4-Bromophenyl phenyl ether	ND @ 0.01 mg/L
Hexachlorobenzene	ND @ 0.01 mg/L
Pentachlorophenol	ND @ 0.05 mg/L
Phenanthrene	ND @ 0.01 mg/L
Anthracene	ND @ 0.01 mg/L
Carbazole	ND @ 0.01 mg/L
Dibutyl Phthalate	ND @ 0.01 mg/L
Fluoranthene	ND @ 0.01 mg/L
Benzidine	ND @ 0.05 mg/L
Pyrene	ND @ 0.01 mg/L
Butyl Benzyl Phthalate	ND @ 0.01 mg/L
3,3'-Dichlorobenzidine	ND @ 0.02 mg/L
Benzo(A)Anthracene	ND @ 0.01 mg/L
Chrysene	ND @ 0.01 mg/L
Bis(2-Ethylhexyl)Phthalate	0.003 mg/L[B,J]
Dioctylphthalate	ND @ 0.01 mg/L
Benzo(B)Fluoranthene	ND @ 0.01 mg/L
Benzo(K)Fluoranthene	ND @ 0.01 mg/L
Benzo(A)Pyrene	ND @ 0.01 mg/L
Indeno(1,2,3-C,D)Pyrene	ND @ 0.01 mg/L
Dibenzo(A,H)Anthracene	ND @ 0.01 mg/L
Benzo(G,H,I)Perylene	ND @ 0.01 mg/L

ND = Not Detected, B = Analyte Found In Blank, J = Estimated Value

This report has been prepared and reviewed by personnel within the Division of Environmental Services. It has been approved for release.

William E. Davis, Director
Division of Environmental Services

PHILLIP J. SHEPHERD
SECRETARY

BRERETON C. JONES
GOVERNOR

COMMONWEALTH OF KENTUCKY
NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
FRANKFORT OFFICE PARK
18 REILLY ROAD
FRANKFORT, KENTUCKY 40601

July 27, 1992

Division of Environmental Services
Report Number: A20-01142
Sample Number: 9202190

TO: Division of Water
Frankfort Office Park
Frankfort, Kentucky 40601

RE: Boone Creek Drainage

ATTN: Michael Mills

County: Fayette & Clark

Facility: DOW#04026004

Collected by: Skip Call **Date:** 04/15/92 **Time:** 1050

Delivered by: Skip Call **Date:** 04/16/92 **Time:** 1100

Received by: Polly Ellis **Date:** 04/16/92 **Time:** 1100

Sample Matrix: Water **Collection Method:** Grab

Sample Identification: Boone Ceeek / Sulpher Well Road

REPORT OF ANALYSIS

TOTAL CONSTITUENTS	CONCENTRATION
Acidity	0.20 mg/L
Alkalinity	154 mg/L
BOD-5	3.2 mg/L
Chloride	ND @ 0.1 mg/L
Conductivity	385 µmho/cm
Fluoride	0.20 mg/L
Hardness, total	173 mg/L
pH	8.2 S.U.
Total Suspended Solids	5 mg/L
Total Dissolved Solids	231 mg/L
Sulfate	24.7 mg/L
Organic Carbon	2.1 mg/L
Turbidity	3.1 NTU
Ammonia-Nitrogen	ND @ 0.05 mg/L
Total Kjeldhal Nitrogen	0.554 mg/L
Nitrate	2.89 mg/L
Phosphorus, total	0.255 mg/L
Calcium	75.7 mg/L
Magnesium	6.01 mg/L
Potassium	1.05 mg/L
Sodium	2.51 mg/L
Aluminum	0.162 mg/L
Arsenic	ND @ 0.002 mg/L
Barium	0.014 mg/L

TOTAL CONSTITUENTS	CONCENTRATION
Beryllium	ND @ 0.002 mg/L
Cadmium	ND @ 0.001 mg/L
Chromium	0.005 mg/L
Copper	0.001 mg/L
Iron	0.243 mg/L
Lead	ND @ 0.002 mg/L
Manganese	0.043 mg/L
Mercury	ND @ 0.0001 mg/L
Nickel	ND @ 0.002 mg/L
Selenium	ND @ 0.002 mg/L
Silver	ND @ 0.001 mg/L
Zinc	ND @ 0.003 mg/L
Dichlorodifluoromethane	ND @ 0.005 mg/L
Chloromethane	ND @ 0.005 mg/L
Vinyl Chloride	ND @ 0.005 mg/L
Bromomethane	ND @ 0.005 mg/L
Chloroethane	ND @ 0.005 mg/L
Trichlorofluoromethane	ND @ 0.005 mg/L
1,1-Dichloroethene	ND @ 0.005 mg/L
Acetone	ND @ 0.010 mg/L[B]
Carbon Disulfide	0.002 mg/L[J]
Dichloromethane (Methylene Chloride)	0.004 mg/L[B,J]
trans-1,2-Dichloroethene	ND @ 0.005 mg/L
1,1-Dichloroethane	ND @ 0.005 mg/L
Vinyl Acetate	ND @ 0.010 mg/L
2-Butanone (Methyl Ethyl Ketone)	ND @ 0.010 mg/L
2,2-Dichloropropane	ND @ 0.005 mg/L
cis-1,2-Dichloroethene	ND @ 0.005 mg/L
Bromochloromethane	ND @ 0.005 mg/L
Chloroform	ND @ 0.005 mg/L
1,1,1-Trichloroethane	ND @ 0.005 mg/L
Carbon Tetrachloride	ND @ 0.005 mg/L
1,1-Dichloropropene	ND @ 0.005 mg/L
Benzene	ND @ 0.005 mg/L
1,2-Dichloroethane	ND @ 0.005 mg/L
Trichloroethene	ND @ 0.005 mg/L
1,2-Dichloropropane	ND @ 0.005 mg/L
Dibromomethane	ND @ 0.005 mg/L
Bromodichloromethane	ND @ 0.005 mg/L
cis-1,3-Dichloropropene	ND @ 0.005 mg/L
4-Methyl-2-pentanone (MIBK)	ND @ 0.010 mg/L
Toluene	ND @ 0.005 mg/L
trans 1,3-Dichloropropene	ND @ 0.005 mg/L
1,1,2-Trichloroethane	ND @ 0.005 mg/L
Tetrachloroethene	ND @ 0.005 mg/L
1,3-Dichloropropane	ND @ 0.005 mg/L
Dibromochloromethane	ND @ 0.005 mg/L
2-Hexanone (Methyl butyl ketone)	ND @ 0.010 mg/L
1,2-Dibromoethane (EDB)	ND @ 0.005 mg/L
Chlorobenzene	ND @ 0.005 mg/L
1-Chlorohexane	ND @ 0.005 mg/L

TOTAL CONSTITUENTS	CONCENTRATION
Ethyl Benzene	ND @ 0.005 mg/L
1,1,1,2-Tetrachloroethane	ND @ 0.005 mg/L
1,2-Xylene	ND @ 0.005 mg/L
1,3-Xylene & 1,4-Xylene	ND @ 0.005 mg/L
Styrene	ND @ 0.005 mg/L
Bromoform	ND @ 0.005 mg/L
Isopropylbenzene (Cumene)	ND @ 0.005 mg/L
Bromobenzene	ND @ 0.005 mg/L
1,2,3-Trichloropropane	ND @ 0.005 mg/L
1,1,2,2-Tetrachloroethane	ND @ 0.005 mg/L
n-Propylbenzene	ND @ 0.005 mg/L
2-Chlorotoluene	ND @ 0.005 mg/L
3-Chlorotoluene	ND @ 0.005 mg/L
4-Chlorotoluene	ND @ 0.005 mg/L
1,3,5-Trimethylbenzene	ND @ 0.005 mg/L
tert-Butylbenzene	ND @ 0.005 mg/L
1,2,4-Trimethylbenzene	ND @ 0.005 mg/L
sec-Butylbenzene	ND @ 0.005 mg/L
Isopropyl toluene (Cymene)	ND @ 0.005 mg/L
n-Butylbenzene	ND @ 0.005 mg/L
1,2-Dibromo-3-chloropropane (DBCP)	ND @ 0.005 mg/L
Hexachlorobutadiene	ND @ 0.005 mg/L
1,2,3-Trichlorobenzene	ND @ 0.005 mg/L
Phenol	ND @ 0.01 mg/L
Aniline	ND @ 0.01 mg/L
Bis-(2-Chloroethyl)ether	ND @ 0.01 mg/L
2-Chlorophenol	ND @ 0.01 mg/L
1,3-Dichlorobenzene	ND @ 0.01 mg/L
1,4-Dichlorobenzene	ND @ 0.01 mg/L
Benzyl Alcohol	ND @ 0.01 mg/L
1,2-Dichlorobenzene	ND @ 0.01 mg/L
2-Methylphenol	ND @ 0.01 mg/L
4-Methylphenol	ND @ 0.01 mg/L
Bis-(2-Chloroisopropyl)ether	ND @ 0.01 mg/L
N-Nitroso-di-n-propylamine	ND @ 0.01 mg/L
Hexachloroethane	ND @ 0.01 mg/L
Nitrobenzene	ND @ 0.01 mg/L
Isophorone	ND @ 0.01 mg/L
2-Nitrophenol	ND @ 0.01 mg/L
2,4-Dimethylphenol	ND @ 0.01 mg/L
Bis-(2-Chloroethoxy)methane	ND @ 0.01 mg/L
Benzoic Acid	ND @ 0.051 mg/L
2,4-Dichlorophenol	ND @ 0.01 mg/L
1,2,4-Trichlorobenzene	ND @ 0.01 mg/L
Naphthalene	ND @ 0.01 mg/L
4-Chloroaniline	ND @ 0.01 mg/L
1,1,2,3,4,4-Hexachloro-1,3-butadiene	ND @ 0.01 mg/L
4-Chloro-3-methylphenol	ND @ 0.01 mg/L
2-Methylnaphthalene	ND @ 0.01 mg/L
1,2,3,4,5,5-Hexachloro-1,3-cyclopentadiene	ND @ 0.01 mg/L
2,4,6-Trichlorophenol	ND @ 0.01 mg/L

TOTAL CONSTITUENTS	CONCENTRATION
2,4,5-Trichlorophenol	ND @ 0.01 mg/L
2-Chloronaphthalene	ND @ 0.01 mg/L
2-Nitroaniline	ND @ 0.051 mg/L
Dimethyl Phthalate	ND @ 0.01 mg/L
Acenaphthylene	ND @ 0.01 mg/L
2,6-Dinitrotoluene	ND @ 0.01 mg/L
3-Nitroaniline	ND @ 0.051 mg/L
Acenaphthene	ND @ 0.01 mg/L
2,4-Dinitrophenol	ND @ 0.051 mg/L
4-Nitrophenol	ND @ 0.051 mg/L
Dibenzofuran	ND @ 0.01 mg/L
2,4-Dinitrotoluene	ND @ 0.01 mg/L
Diethyl Phthalate	ND @ 0.01 mg/L
Fluorene	ND @ 0.01 mg/L
4-Chlorophenyl phenyl ether	ND @ 0.01 mg/L
4-Nitroaniline	ND @ 0.051 mg/L
2-Methyl-4,6-Dinitrophenol	ND @ 0.051 mg/L
N-Nitrosodiphenylamine	ND @ 0.01 mg/L
Diphenyl Amine	ND @ 0.01 mg/L
Azobenzene	ND @ 0.01 mg/L
4-Bromophenyl phenyl ether	ND @ 0.01 mg/L
Hexachlorobenzene	ND @ 0.01 mg/L
Pentachlorophenol	ND @ 0.051 mg/L
Phenanthrene	ND @ 0.01 mg/L
Anthracene	ND @ 0.01 mg/L
Carbazole	ND @ 0.01 mg/L
Dibutyl Phthalate	ND @ 0.01 mg/L
Fluoranthene	ND @ 0.01 mg/L
Benzidine	ND @ 0.051 mg/L
Pyrene	ND @ 0.01 mg/L
Butyl Benzyl Phthalate	ND @ 0.01 mg/L
3,3'-Dichlorobenzidine	ND @ 0.02 mg/L
Benzo(A)Anthracene	ND @ 0.01 mg/L
Chrysene	ND @ 0.01 mg/L
Bis(2-Ethylhexyl)Phthalate	0.003 mg/L[B,J]
Dioctylphthalate	ND @ 0.01 mg/L
Benzo(B)Fluoranthene	ND @ 0.01 mg/L
Benzo(K)Fluoranthene	ND @ 0.01 mg/L
Benzo(A)Pyrene	ND @ 0.01 mg/L
Indeno(1,2,3-C,D)Pyrene	ND @ 0.01 mg/L
Dibenzo(A,H)Anthracene	ND @ 0.01 mg/L
Benzo(G,H,I)Perylene	ND @ 0.01 mg/L

ND = Not Detected, B = Analyte Found In Blank, J = Estimated Value

This report has been prepared and reviewed by personnel within the Division of Environmental Services. It has been approved for release.

for

William E. Davis, Director
Division of Environmental Services

PHILLIP J. SHEPHERD
SECRETARY

BRERETON C. JONES
GOVERNOR

COMMONWEALTH OF KENTUCKY
NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
FRANKFORT OFFICE PARK
18 REILLY ROAD
FRANKFORT, KENTUCKY 40601

July 27, 1992

Division of Environmental Services
Report Number: A20-01143
Sample Number: 9202191

TO: Division of Water
Frankfort Office Park
Frankfort, Kentucky 40601

RE: Boone Creek Drainage

ATTN: Michael Mills

County: Fayette & Clark

Facility: DOW#04026005

Collected by: Skip Call **Date:** 04/15/92 **Time:** 1020

Delivered by: Skip Call **Date:** 04/16/92 **Time:** 1100

Received by: Polly Ellis **Date:** 04/16/92 **Time:** 1100

Sample Matrix: Water **Collection Method:** Grab

Sample Identification: Baughman Fork below UT

REPORT OF ANALYSIS

TOTAL CONSTITUENTS	CONCENTRATION
Acidity	0.31 mg/L
Alkalinity	167 mg/L
BOD-5	3.5 mg/L
Chloride	9.2 mg/L
Conductivity	461 µmho/cm
Fluoride	0.35 mg/L
Hardness, total	221 mg/L
pH	8.1 S.U.
Total Suspended Solids	2 mg/L
Total Dissolved Solids	280 mg/L
Sulfate	50.0 mg/L
Organic Carbon	1.8 mg/L
Turbidity	1.2 NTU
Ammonia-Nitrogen	0.139 mg/L
Total Kjeldhal Nitrogen	0.308 mg/L
Nitrate	2.18 mg/L
Phosphorus, total	0.341 mg/L
Calcium	79.2 mg/L
Magnesium	7.86 mg/L
Potassium	1.35 mg/L
Sodium	6.03 mg/L
Aluminum	ND @ 0.023 mg/L
Arsenic	ND @ 0.002 mg/L
Barium	0.013 mg/L

TOTAL CONSTITUENTS	CONCENTRATION
Beryllium	ND @ 0.002 mg/L
Cadmium	ND @ 0.001 mg/L
Chromium	0.001 mg/L
Copper	0.001 mg/L
Iron	0.059 mg/L
Lead	ND @ 0.002 mg/L
Manganese	0.023 mg/L
Mercury	ND @ 0.0001 mg/L
Nickel	ND @ 0.001 mg/L
Selenium	ND @ 0.002 mg/L
Silver	ND @ 0.001 mg/L
Zinc	ND @ 0.003 mg/L
Dichlorodifluoromethane	ND @ 0.005 mg/L
Chloromethane	ND @ 0.005 mg/L
Vinyl Chloride	ND @ 0.005 mg/L
Bromomethane	ND @ 0.005 mg/L
Chloroethane	ND @ 0.005 mg/L
Trichlorofluoromethane	ND @ 0.005 mg/L
1,1-Dichloroethene	ND @ 0.005 mg/L
Acetone	0.003 mg/L[B,J]
Carbon Disulfide	0.003 mg/L[J]
Dichloromethane (Methylene Chloride)	0.004 mg/L[B,J]
trans-1,2-Dichloroethene	ND @ 0.005 mg/L
1,1-Dichloroethane	ND @ 0.005 mg/L
Vinyl Acetate	ND @ 0.010 mg/L
2-Butanone (Methyl Ethyl Ketone)	ND @ 0.010 mg/L
2,2-Dichloropropane	ND @ 0.005 mg/L
cis-1,2-Dichloroethene	ND @ 0.005 mg/L
Bromochloromethane	ND @ 0.005 mg/L
Chloroform	ND @ 0.005 mg/L
1,1,1-Trichloroethane	ND @ 0.005 mg/L
Carbon Tetrachloride	ND @ 0.005 mg/L
1,1-Dichloropropene	ND @ 0.005 mg/L
Benzene	ND @ 0.005 mg/L
1,2-Dichloroethane	ND @ 0.005 mg/L
Trichloroethene	ND @ 0.005 mg/L
1,2-Dichloropropane	ND @ 0.005 mg/L
Dibromomethane	ND @ 0.005 mg/L
Bromodichloromethane	ND @ 0.005 mg/L
cis-1,3-Dichloropropene	ND @ 0.005 mg/L
4-Methyl-2-pentanone (MIBK)	ND @ 0.010 mg/L
Toluene	ND @ 0.005 mg/L
trans 1,3-Dichloropropene	ND @ 0.005 mg/L
1,1,2-Trichloroethane	ND @ 0.005 mg/L
Tetrachloroethene	ND @ 0.005 mg/L
1,3-Dichloropropane	ND @ 0.005 mg/L
Dibromochloromethane	ND @ 0.005 mg/L
2-Hexanone (Methyl butyl ketone)	ND @ 0.010 mg/L
1,2-Dibromoethane (EDB)	ND @ 0.005 mg/L
Chlorobenzene	ND @ 0.005 mg/L
1-Chlorohexane	ND @ 0.005 mg/L

TOTAL CONSTITUENTS	CONCENTRATION
Ethyl Benzene	ND @ 0.005 mg/L
1,1,1,2-Tetrachloroethane	ND @ 0.005 mg/L
1,2-Xylene	ND @ 0.005 mg/L
1,3-Xylene & 1,4-Xylene	ND @ 0.005 mg/L
Styrene	ND @ 0.005 mg/L
Bromoform	ND @ 0.005 mg/L
Isopropylbenzene (Cumene)	ND @ 0.005 mg/L
Bromobenzene	ND @ 0.005 mg/L
1,2,3-Trichloropropane	ND @ 0.005 mg/L
1,1,2,2-Tetrachloroethane	ND @ 0.005 mg/L
n-Propylbenzene	ND @ 0.005 mg/L
2-Chlorotoluene	ND @ 0.005 mg/L
3-Chlorotoluene	ND @ 0.005 mg/L
4-Chlorotoluene	ND @ 0.005 mg/L
1,3,5-Trimethylbenzene	ND @ 0.005 mg/L
tert-Butylbenzene	ND @ 0.005 mg/L
1,2,4-Trimethylbenzene	ND @ 0.005 mg/L
sec-Butylbenzene	ND @ 0.005 mg/L
Isopropyl toluene (Cymene)	ND @ 0.005 mg/L
n-Butylbenzene	ND @ 0.005 mg/L
1,2-Dibromo-3-chloropropane (DBCP)	ND @ 0.005 mg/L
Hexachlorobutadiene	ND @ 0.005 mg/L
1,2,3-Trichlorobenzene	ND @ 0.005 mg/L
Phenol	ND @ 0.01 mg/L
Aniline	ND @ 0.01 mg/L
Bis-(2-Chloroethyl)ether	ND @ 0.01 mg/L
2-Chlorophenol	ND @ 0.01 mg/L
1,3-Dichlorobenzene	ND @ 0.01 mg/L
1,4-Dichlorobenzene	ND @ 0.01 mg/L
Benzyl Alcohol	ND @ 0.01 mg/L
1,2-Dichlorobenzene	ND @ 0.01 mg/L
2-Methylphenol	ND @ 0.01 mg/L
4-Methylphenol	ND @ 0.01 mg/L
Bis-(2-Chloroisopropyl)ether	ND @ 0.01 mg/L
N-Nitroso-di-n-propylamine	ND @ 0.01 mg/L
Hexachloroethane	ND @ 0.01 mg/L
Nitrobenzene	ND @ 0.01 mg/L
Isophorone	ND @ 0.01 mg/L
2-Nitrophenol	ND @ 0.01 mg/L
2,4-Dimethylphenol	ND @ 0.01 mg/L
Bis-(2-Chloroethoxy)methane	ND @ 0.01 mg/L
Benzoic Acid	ND @ 0.052 mg/L
2,4-Dichlorophenol	ND @ 0.01 mg/L
1,2,4-Trichlorobenzene	ND @ 0.01 mg/L
Naphthalene	ND @ 0.01 mg/L
4-Chloroaniline	ND @ 0.01 mg/L
1,1,2,3,4,4-Hexachloro-1,3-butadiene	ND @ 0.01 mg/L
4-Chloro-3-methylphenol	ND @ 0.01 mg/L
2-Methylnaphthalene	ND @ 0.01 mg/L
1,2,3,4,5,5-Hexachloro-1,3-cyclopentadiene	ND @ 0.01 mg/L
2,4,6-Trichlorophenol	ND @ 0.01 mg/L

TOTAL CONSTITUENTS	CONCENTRATION
2,4,5-Trichlorophenol	ND @ 0.01 mg/L
2-Chloronaphthalene	ND @ 0.01 mg/L
2-Nitroaniline	ND @ 0.052 mg/L
Dimethyl Phthalate	ND @ 0.01 mg/L
Acenaphthylene	ND @ 0.01 mg/L
2,6-Dinitrotoluene	ND @ 0.01 mg/L
3-Nitroaniline	ND @ 0.052 mg/L
Acenaphthene	ND @ 0.01 mg/L
2,4-Dinitrophenol	ND @ 0.052 mg/L
4-Nitrophenol	ND @ 0.052 mg/L
Dibenzofuran	ND @ 0.01 mg/L
2,4-Dinitrotoluene	ND @ 0.01 mg/L
Diethyl Phthalate	ND @ 0.01 mg/L
Fluorene	ND @ 0.01 mg/L
4-Chlorophenyl phenyl ether	ND @ 0.01 mg/L
4-Nitroaniline	ND @ 0.052 mg/L
2-Methyl-4,6-Dinitrophenol	ND @ 0.052 mg/L
N-Nitrosodiphenylamine	ND @ 0.01 mg/L
Diphenyl Amine	ND @ 0.01 mg/L
Azobenzene	ND @ 0.01 mg/L
4-Bromophenyl phenyl ether	ND @ 0.01 mg/L
Hexachlorobenzene	ND @ 0.01 mg/L
Pentachlorophenol	ND @ 0.052 mg/L
Phenanthrene	ND @ 0.01 mg/L
Anthracene	ND @ 0.01 mg/L
Carbazole	ND @ 0.01 mg/L
Dibutyl Phthalate	ND @ 0.01 mg/L
Fluoranthene	ND @ 0.01 mg/L
Benzidine	ND @ 0.052 mg/L
Pyrene	ND @ 0.01 mg/L
Butyl Benzyl Phthalate	ND @ 0.01 mg/L
3,3'-Dichlorobenzidine	ND @ 0.021 mg/L
Benzo(A)Anthracene	ND @ 0.01 mg/L
Chrysene	ND @ 0.01 mg/L
Bis(2-Ethylhexyl)Phthalate	ND @ 0.01 mg/L[B]
Dioctylphthalate	ND @ 0.01 mg/L
Benzo(B)Fluoranthene	ND @ 0.01 mg/L
Benzo(K)Fluoranthene	ND @ 0.01 mg/L
Benzo(A)Pyrene	ND @ 0.01 mg/L
Indeno(1,2,3-C,D)Pyrene	ND @ 0.01 mg/L
Dibenzo(A,H)Anthracene	ND @ 0.01 mg/L
Benzo(G,H,I)Perylene	ND @ 0.01 mg/L

ND = Not Detected, B = Analyte Found In Blank, J = Estimated Value

This report has been prepared and reviewed by personnel within the Division of Environmental Services. It has been approved for release.

for Scott Ryan

William E. Davis, Director
Division of Environmental Services

PHILLIP J. SHEPHERD
SECRETARY

BRERETON C. JONES
GOVERNOR

COMMONWEALTH OF KENTUCKY
NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
FRANKFORT OFFICE PARK
18 REILLY ROAD
FRANKFORT, KENTUCKY 40601

July 27, 1992

Division of Environmental Services
Report Number: A20-01144
Sample Number: 9202192

TO: Division of Water
Frankfort Office Park
Frankfort, Kentucky 40601

RE: Boone Creek Drainage

ATTN: Michael Mills

County: Fayette & Clark

Facility: DOW#04026006

Collected by: Skip Call **Date:** 04/15/92 **Time:** 0945

Delivered by: Skip Call **Date:** 04/16/92 **Time:** 1100

Received by: Polly Ellis **Date:** 04/16/92 **Time:** 1100

Sample Matrix: Water **Collection Method:** Grab

Sample Identification: Baughman Fork at Cleveland Road

REPORT OF ANALYSIS

TOTAL CONSTITUENTS	CONCENTRATION
Acidity	0.20 mg/L
Alkalinity	117 mg/L
BOD-5	[illegible] mg/L
Chloride	7.4 mg/L
Conductivity	373 µmho/cm
Fluoride	0.58 mg/L
Hardness, total	165 mg/L
pH	8.1 S.U.
Total Suspended Solids	9 mg/L
Total Dissolved Solids	212 mg/L
Sulfate	43.8 mg/L
Organic Carbon	1.7 mg/L
Turbidity	2.6 NTU
Ammonia-Nitrogen	0.307 mg/L
Total Kjeldhal Nitrogen	0.343 mg/L
Nitrate	1.19 mg/L
Phosphorus, total	0.254 mg/L
Calcium	59.3 mg/L
Magnesium	7.59 mg/L
Potassium	1.50 mg/L
Sodium	5.02 mg/L
Aluminum	0.134 mg/L
Arsenic	ND @ 0.002 mg/L
Barium	0.012 mg/L

TOTAL CONSTITUENTS	CONCENTRATION
Beryllium	ND @ 0.002 mg/L
Cadmium	ND @ 0.001 mg/L
Chromium	0.003 mg/L
Copper	0.001 mg/L
Iron	1.63 mg/L
Lead	ND @ 0.002 mg/L
Manganese	0.042 mg/L
Mercury	ND @ 0.0001 mg/L
Nickel	ND @ 0.002 mg/L
Selenium	ND @ 0.002 mg/L
Silver	0.002 mg/L
Zinc	0.004 mg/L
Dichlorodifluoromethane	ND @ 0.005 mg/L
Chloromethane	ND @ 0.005 mg/L
Vinyl Chloride	ND @ 0.005 mg/L
Bromomethane	ND @ 0.005 mg/L
Chloroethane	ND @ 0.005 mg/L
Trichlorofluoromethane	ND @ 0.005 mg/L
1,1-Dichloroethene	ND @ 0.005 mg/L
Acetone	0.007 mg/L[B,J]
Carbon Disulfide	0.002 mg/L[J]
Dichloromethane (Methylene Chloride)	0.004 mg/L[B,J]
trans-1,2-Dichloroethene	ND @ 0.005 mg/L
1,1-Dichloroethane	ND @ 0.005 mg/L
Vinyl Acetate	ND @ 0.010 mg/L
2-Butanone (Methyl Ethyl Ketone)	ND @ 0.010 mg/L
2,2-Dichloropropane	ND @ 0.005 mg/L
cis-1,2-Dichloroethene	ND @ 0.005 mg/L
Bromochloromethane	ND @ 0.005 mg/L
Chloroform	0.004 mg/L[J]
1,1,1-Trichloroethane	ND @ 0.005 mg/L
Carbon Tetrachloride	ND @ 0.005 mg/L
1,1-Dichloropropene	ND @ 0.005 mg/L
Benzene	ND @ 0.005 mg/L
1,2-Dichloroethane	ND @ 0.005 mg/L
Trichloroethene	ND @ 0.005 mg/L
1,2-Dichloropropane	ND @ 0.005 mg/L
Dibromomethane	ND @ 0.005 mg/L
Bromodichloromethane	0.001 mg/L[J]
cis-1,3-Dichloropropene	ND @ 0.005 mg/L
4-Methyl-2-pentanone (MIBK)	ND @ 0.010 mg/L
Toluene	ND @ 0.005 mg/L
trans 1,3-Dichloropropene	ND @ 0.005 mg/L
1,1,2-Trichloroethane	ND @ 0.005 mg/L
Tetrachloroethene	ND @ 0.005 mg/L
1,3-Dichloropropane	ND @ 0.005 mg/L
Dibromochloromethane	ND @ 0.005 mg/L
2-Hexanone (Methyl butyl ketone)	ND @ 0.010 mg/L
1,2-Dibromoethane (EDB)	ND @ 0.005 mg/L
Chlorobenzene	ND @ 0.005 mg/L
1-Chlorohexane	ND @ 0.005 mg/L
Ethyl Benzene	ND @ 0.005 mg/L

TOTAL CONSTITUENTS	CONCENTRATION
1,1,1,2-Tetrachloroethane	ND @ 0.005 mg/L
1,2-Xylene	ND @ 0.005 mg/L
1,3-Xylene & 1,4-Xylene	ND @ 0.005 mg/L
Styrene	ND @ 0.005 mg/L
Bromoform	ND @ 0.005 mg/L
Isopropylbenzene (Cumene)	ND @ 0.005 mg/L
Bromobenzene	ND @ 0.005 mg/L
1,2,3-Trichloropropane	ND @ 0.005 mg/L
1,1,2,2-Tetrachloroethane	ND @ 0.005 mg/L
n-Propylbenzene	ND @ 0.005 mg/L
2-Chlorotoluene	ND @ 0.005 mg/L
3-Chlorotoluene	ND @ 0.005 mg/L
4-Chlorotoluene	ND @ 0.005 mg/L
1,3,5-Trimethylbenzene	ND @ 0.005 mg/L
tert-Butylbenzene	ND @ 0.005 mg/L
1,2,4-Trimethylbenzene	ND @ 0.005 mg/L
sec-Butylbenzene	ND @ 0.005 mg/L
Isopropyl toluene (Cymene)	ND @ 0.005 mg/L
n-Butylbenzene	ND @ 0.005 mg/L
1,2-Dibromo-3-chloropropane (DBCP)	ND @ 0.005 mg/L
Hexachlorobutadiene	ND @ 0.005 mg/L
1,2,3-Trichlorobenzene	ND @ 0.005 mg/L
Phenol	ND @ 0.01 mg/L
Aniline	ND @ 0.01 mg/L
Bis-(2-Chloroethyl)ether	ND @ 0.01 mg/L
2-Chlorophenol	ND @ 0.01 mg/L
1,3-Dichlorobenzene	ND @ 0.01 mg/L
1,4-Dichlorobenzene	ND @ 0.01 mg/L
Benzyl Alcohol	ND @ 0.01 mg/L
1,2-Dichlorobenzene	ND @ 0.01 mg/L
2-Methylphenol	ND @ 0.01 mg/L
4-Methylphenol	ND @ 0.01 mg/L
Bis-(2-Chloroisopropyl)ether	ND @ 0.01 mg/L
N-Nitroso-di-n-propylamine	ND @ 0.01 mg/L
Hexachloroethane	ND @ 0.01 mg/L
Nitrobenzene	ND @ 0.01 mg/L
Isophorone	ND @ 0.01 mg/L
2-Nitrophenol	ND @ 0.01 mg/L
2,4-Dimethylphenol	ND @ 0.01 mg/L
Bis-(2-Chloroethoxy)methane	ND @ 0.01 mg/L
Benzoic Acid	ND @ 0.052 mg/L
2,4-Dichlorophenol	ND @ 0.01 mg/L
1,2,4-Trichlorobenzene	ND @ 0.01 mg/L
Naphthalene	ND @ 0.01 mg/L
4-Chloroaniline	ND @ 0.01 mg/L
1,1,2,3,4,4-Hexachloro-1,3-butadiene	ND @ 0.01 mg/L
4-Chloro-3-methylphenol	ND @ 0.01 mg/L
2-Methylnaphthalene	ND @ 0.01 mg/L
1,2,3,4,5,5-Hexachloro-1,3-cyclopentadiene	ND @ 0.01 mg/L
2,4,6-Trichlorophenol	ND @ 0.01 mg/L
2,4,5-Trichlorophenol	ND @ 0.01 mg/L
2-Chloronaphthalene	ND @ 0.01 mg/L

TOTAL CONSTITUENTS	CONCENTRATION
2-Nitroaniline	ND @ 0.052 mg/L
Dimethyl Phthalate	ND @ 0.01 mg/L
Acenaphthylene	ND @ 0.01 mg/L
2,6-Dinitrotoluene	ND @ 0.01 mg/L
3-Nitroaniline	ND @ 0.052 mg/L
Acenaphthene	ND @ 0.01 mg/L
2,4-Dinitrophenol	ND @ 0.052 mg/L
4-Nitrophenol	ND @ 0.052 mg/L
Dibenzofuran	ND @ 0.01 mg/L
2,4-Dinitrotoluene	ND @ 0.01 mg/L
Diethyl Phthalate	ND @ 0.01 mg/L
Fluorene	ND @ 0.01 mg/L
4-Chlorophenyl phenyl ether	ND @ 0.01 mg/L
4-Nitroaniline	ND @ 0.052 mg/L
2-Methyl-4,6-Dinitrophenol	ND @ 0.052 mg/L
N-Nitrosodiphenylamine	ND @ 0.01 mg/L
Diphenyl Amine	ND @ 0.01 mg/L
Azobenzene	ND @ 0.01 mg/L
4-Bromophenyl phenyl ether	ND @ 0.01 mg/L
Hexachlorobenzene	ND @ 0.01 mg/L
Pentachlorophenol	ND @ 0.052 mg/L
Phenanthrene	ND @ 0.01 mg/L
Anthracene	ND @ 0.01 mg/L
Carbazole	ND @ 0.01 mg/L
Dibutyl Phthalate	ND @ 0.01 mg/L
Fluoranthene	ND @ 0.01 mg/L
Benzidine	ND @ 0.052 mg/L
Pyrene	ND @ 0.01 mg/L
Butyl Benzyl Phthalate	ND @ 0.01 mg/L
3,3'-Dichlorobenzidine	ND @ 0.021 mg/L
Benzo(A)Anthracene	ND @ 0.01 mg/L
Chrysene	ND @ 0.01 mg/L
Bis(2-Ethylhexyl)Phthalate	0.002 mg/L[B,J]
Dioctylphthalate	ND @ 0.01 mg/L
Benzo(B)Fluoranthene	ND @ 0.01 mg/L
Benzo(K)Fluoranthene	ND @ 0.01 mg/L
Benzo(A)Pyrene	ND @ 0.01 mg/L
Indeno(1,2,3-C,D)Pyrene	ND @ 0.01 mg/L
Dibenzo(A,H)Anthracene	ND @ 0.01 mg/L
Benzo(G,H,I)Perylene	ND @ 0.01 mg/L
4-Methyl-3-pentene-2-one	0.017 mg/L[J,N]

ND = Not Detected, B = Analyte Found In Blank, J = Estimated Value
N = Presumptive Identification

This report has been prepared and reviewed by personnel within the Division of Environmental Services. It has been approved for release.

William E. Davis, Director
Division of Environmental Services

PHILLIP J. SHEPHERD
SECRETARY

BRERETON C. JONES
GOVERNOR

COMMONWEALTH OF KENTUCKY
NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
FRANKFORT OFFICE PARK
18 REILLY ROAD
FRANKFORT, KENTUCKY 40601

July 27, 1992

Division of Environmental Services
Report Number: A20-01145
Sample Number: 9202193

TO: Division of Water
Frankfort Office Park
Frankfort, Kentucky 40601

RE: Boone Creek Drainage

ATTN: Michael Mills

County: Fayette & Clark

Facility: DOW#04026007

Collected by: Skip Call **Date:** 04/15/92 **Time:** 0850

Delivered by: Skip Call **Date:** 04/16/92 **Time:** 1100

Received by: Polly Ellis **Date:** 04/16/92 **Time:** 1100

Sample Matrix: Water **Collection Method:** Grab

Sample Identification: UT Baughman Fork below Blue Sky WWTP

REPORT OF ANALYSIS

TOTAL CONSTITUENTS	CONCENTRATION
Acidity	0.43 mg/L
Alkalinity	202 mg/L
BOD-5	4.3 mg/L
Chloride	20.5 mg/L
Conductivity	630 µmho/cm
Fluoride	0.55 mg/L
Hardness, total	284 mg/L
pH	8.0 S.U.
Total Suspended Solids	2 mg/L
Total Dissolved Solids	366 mg/L
Sulfate	77.6 mg/L
Organic Carbon	3.1 mg/L
Turbidity	1.7 NTU
Ammonia-Nitrogen	2.34 mg/L
Total Kjeldhal Nitrogen	2.94 mg/L
Nitrate	2.99 mg/L
Phosphorus, total	0.911 mg/L
Calcium	99.7 mg/L
Magnesium	12.7 mg/L
Potassium	2.50 mg/L
Sodium	14.5 mg/L
Aluminum	ND @ 0.023 mg/L
Arsenic	ND @ 0.002 mg/L
Barium	0.017 mg/L

TOTAL CONSTITUENTS	CONCENTRATION
Beryllium	ND @ 0.002 mg/L
Cadmium	ND @ 0.001 mg/L
Chromium	0.003 mg/L
Copper	0.001 mg/L
Iron	0.126 mg/L
Lead	ND @ 0.002 mg/L
Manganese	0.052 mg/L
Mercury	ND @ 0.0001 mg/L
Nickel	ND @ 0.002 mg/L
Selenium	ND @ 0.002 mg/L
Silver	ND @ 0.001 mg/L
Zinc	ND @ 0.003 mg/L
Dichlorodifluoromethane	ND @ 0.005 mg/L
Chloromethane	ND @ 0.005 mg/L
Vinyl Chloride	ND @ 0.005 mg/L
Bromomethane	ND @ 0.005 mg/L
Chloroethane	ND @ 0.005 mg/L
Trichlorofluoromethane	ND @ 0.005 mg/L
1,1-Dichloroethene	ND @ 0.005 mg/L
Acetone	0.006 mg/L[B,J]
Carbon Disulfide	0.002 mg/L[J]
Dichloromethane (Methylene Chloride)	0.004 mg/L[B,J]
trans-1,2-Dichloroethene	ND @ 0.005 mg/L
1,1-Dichloroethane	ND @ 0.005 mg/L
Vinyl Acetate	ND @ 0.010 mg/L
2-Butanone (Methyl Ethyl Ketone)	ND @ 0.010 mg/L
2,2-Dichloropropane	ND @ 0.005 mg/L
cis-1,2-Dichloroethene	ND @ 0.005 mg/L
Bromochloromethane	ND @ 0.005 mg/L
Chloroform	ND @ 0.005 mg/L
1,1,1-Trichloroethane	ND @ 0.005 mg/L
Carbon Tetrachloride	ND @ 0.005 mg/L
1,1-Dichloropropene	ND @ 0.005 mg/L
Benzene	ND @ 0.005 mg/L
1,2-Dichloroethane	ND @ 0.005 mg/L
Trichloroethene	ND @ 0.005 mg/L
1,2-Dichloropropane	ND @ 0.005 mg/L
Dibromomethane	ND @ 0.005 mg/L
Bromodichloromethane	ND @ 0.005 mg/L
cis-1,3-Dichloropropene	ND @ 0.005 mg/L
4-Methyl-2-pentanone (MIBK)	ND @ 0.010 mg/L
Toluene	ND @ 0.005 mg/L
trans 1,3-Dichloropropene	ND @ 0.005 mg/L
1,1,2-Trichloroethane	ND @ 0.005 mg/L
Tetrachloroethene	ND @ 0.005 mg/L
1,3-Dichloropropane	ND @ 0.005 mg/L
Dibromochloromethane	ND @ 0.005 mg/L
2-Hexanone (Methyl butyl ketone)	ND @ 0.010 mg/L
1,2-Dibromoethane (EDB)	ND @ 0.005 mg/L
Chlorobenzene	ND @ 0.005 mg/L
1-Chlorohexane	ND @ 0.005 mg/L

TOTAL CONSTITUENTS	CONCENTRATION
Ethyl Benzene	ND @ 0.005 mg/L
1,1,1,2-Tetrachloroethane	ND @ 0.005 mg/L
1,2-Xylene	ND @ 0.005 mg/L
1,3-Xylene & 1,4-Xylene	ND @ 0.005 mg/L
Styrene	ND @ 0.005 mg/L
Bromoform	ND @ 0.005 mg/L
Isopropylbenzene (Cumene)	ND @ 0.005 mg/L
Bromobenzene	ND @ 0.005 mg/L
1,2,3-Trichloropropane	ND @ 0.005 mg/L
1,1,2,2-Tetrachloroethane	ND @ 0.005 mg/L
n-Propylbenzene	ND @ 0.005 mg/L
2-Chlorotoluene	ND @ 0.005 mg/L
3-Chlorotoluene	ND @ 0.005 mg/L
4-Chlorotoluene	ND @ 0.005 mg/L
1,3,5-Trimethylbenzene	ND @ 0.005 mg/L
tert-Butylbenzene	ND @ 0.005 mg/L
1,2,4-Trimethylbenzene	ND @ 0.005 mg/L
sec-Butylbenzene	ND @ 0.005 mg/L
Isopropyl toluene (Cymene)	ND @ 0.005 mg/L
n-Butylbenzene	ND @ 0.005 mg/L
1,2-Dibromo-3-chloropropane (DBCP)	ND @ 0.005 mg/L
Hexachlorobutadiene	ND @ 0.005 mg/L
1,2,3-Trichlorobenzene	ND @ 0.005 mg/L
Phenol	ND @ 0.01 mg/L
Aniline	ND @ 0.01 mg/L
Bis-(2-Chloroethyl)ether	ND @ 0.01 mg/L
2-Chlorophenol	ND @ 0.01 mg/L
1,3-Dichlorobenzene	ND @ 0.01 mg/L
1,4-Dichlorobenzene	ND @ 0.01 mg/L
Benzyl Alcohol	ND @ 0.01 mg/L
1,2-Dichlorobenzene	ND @ 0.01 mg/L
2-Methylphenol	ND @ 0.01 mg/L
4-Methylphenol	ND @ 0.01 mg/L
Bis-(2-Chloroisopropyl)ether	ND @ 0.01 mg/L
N-Nitroso-di-n-propylamine	ND @ 0.01 mg/L
Hexachloroethane	ND @ 0.01 mg/L
Nitrobenzene	ND @ 0.01 mg/L
Isophorone	ND @ 0.01 mg/L
2-Nitrophenol	ND @ 0.01 mg/L
2,4-Dimethylphenol	ND @ 0.01 mg/L
Bis-(2-Chloroethoxy)methane	ND @ 0.01 mg/L
Benzoic Acid	ND @ 0.051 mg/L
2,4-Dichlorophenol	ND @ 0.01 mg/L
1,2,4-Trichlorobenzene	ND @ 0.01 mg/L
Naphthalene	ND @ 0.01 mg/L
4-Chloroaniline	ND @ 0.01 mg/L
1,1,2,3,4,4-Hexachloro-1,3-butadiene	ND @ 0.01 mg/L
4-Chloro-3-methylphenol	ND @ 0.01 mg/L
2-Methylnaphthalene	ND @ 0.01 mg/L
1,2,3,4,5,5-Hexachloro-1,3-cyclopentadiene	ND @ 0.01 mg/L
2,4,6-Trichlorophenol	ND @ 0.01 mg/L

TOTAL CONSTITUENTS	CONCENTRATION
2,4,5-Trichlorophenol	ND @ 0.01 mg/L
2-Chloronaphthalene	ND @ 0.01 mg/L
2-Nitroaniline	ND @ 0.051 mg/L
Dimethyl Phthalate	ND @ 0.01 mg/L
Acenaphthylene	ND @ 0.01 mg/L
2,6-Dinitrotoluene	ND @ 0.01 mg/L
3-Nitroaniline	ND @ 0.051 mg/L
Acenaphthene	ND @ 0.01 mg/L
2,4-Dinitrophenol	ND @ 0.051 mg/L
4-Nitrophenol	ND @ 0.051 mg/L
Dibenzofuran	ND @ 0.01 mg/L
2,4-Dinitrotoluene	ND @ 0.01 mg/L
Diethyl Phthalate	ND @ 0.01 mg/L
Fluorene	ND @ 0.01 mg/L
4-Chlorophenyl phenyl ether	ND @ 0.01 mg/L
4-Nitroaniline	ND @ 0.051 mg/L
2-Methyl-4,6-Dinitrophenol	ND @ 0.051 mg/L
N-Nitrosodiphenylamine	ND @ 0.01 mg/L
Diphenyl Amine	ND @ 0.01 mg/L
Azobenzene	ND @ 0.01 mg/L
4-Bromophenyl phenyl ether	ND @ 0.01 mg/L
Hexachlorobenzene	ND @ 0.01 mg/L
Pentachlorophenol	ND @ 0.051 mg/L
Phenanthrene	ND @ 0.01 mg/L
Anthracene	ND @ 0.01 mg/L
Carbazole	ND @ 0.01 mg/L
Dibutyl Phthalate	ND @ 0.01 mg/L
Fluoranthene	ND @ 0.01 mg/L
Benzidine	ND @ 0.051 mg/L
Pyrene	ND @ 0.01 mg/L
Butyl Benzyl Phthalate	ND @ 0.01 mg/L
3,3'-Dichlorobenzidine	ND @ 0.02 mg/L
Benzo(A)Anthracene	ND @ 0.01 mg/L
Chrysene	ND @ 0.01 mg/L
Bis(2-Ethylhexyl)Phthalate	ND @ 0.01 mg/L[B]
Dioctylphthalate	ND @ 0.01 mg/L
Benzo(B)Fluoranthene	ND @ 0.01 mg/L
Benzo(K)Fluoranthene	ND @ 0.01 mg/L
Benzo(A)Pyrene	ND @ 0.01 mg/L
Indeno(1,2,3-C,D)Pyrene	ND @ 0.01 mg/L
Dibenzo(A,H)Anthracene	ND @ 0.01 mg/L
Benzo(G,H,I)Perylene	ND @ 0.01 mg/L

ND = Not Detected, B = Analyte Found In Blank, J = Estimated Value

This report has been prepared and reviewed by personnel within the Division of Environmental Services. It has been approved for release.

for Scott Byrd

William E. Davis, Director
Division of Environmental Services

PHILLIP J. SHEPHERD
SECRETARY

BRERETON C. JONES
GOVERNOR

COMMONWEALTH OF KENTUCKY
NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
FRANKFORT OFFICE PARK
18 REILLY ROAD
FRANKFORT, KENTUCKY 40601

July 27, 1992

Division of Environmental Services
Report Number: A20-01146
Sample Number: 9202194

TO: Division of Water
Frankfort Office Park
Frankfort, Kentucky 40601

RE: Boone Creek Drainage

ATTN: Michael Mills

County: Fayette & Clark

Facility: DOW#04026008

Collected by: Skip Call **Date:** 04/15/92 **Time:** 0915

Delivered by: Skip Call **Date:** 04/16/92 **Time:** 1100

Received by: Polly Ellis **Date:** 04/16/92 **Time:** 1100

Sample Matrix: Water **Collection Method:** Grab

Sample Identification: UT Baughman Fork above Blue Sky WWTP

REPORT OF ANALYSIS

TOTAL CONSTITUENTS	CONCENTRATION
Acidity	0.51 mg/L
Alkalinity	213 mg/L
BOD-5	3.6 mg/L
Chloride	12.5 mg/L
Conductivity	617 µmho/cm
Fluoride	0.26 mg/L
Hardness, total	126 mg/L
pH	8.0 S.U.
Total Suspended Solids	3 mg/L
Total Dissolved Solids	360 mg/L
Sulfate	83.0 mg/L
Organic Carbon	2.4 mg/L
Turbidity	ND @ 1 NTU
Ammonia-Nitrogen	ND @ 0.05 mg/L
Total Kjeldhal Nitrogen	0.397 mg/L
Nitrate	3.02 mg/L
Phosphorus, total	0.258 mg/L
Calcium	103 mg/L
Magnesium	12.6 mg/L
Potassium	1.45 mg/L
Sodium	8.08 mg/L
Aluminum	0.182 mg/L
Arsenic	ND @ 0.002 mg/L
Barium	0.018 mg/L

TOTAL CONSTITUENTS	CONCENTRATION
Beryllium	ND @ 0.002 mg/L
Cadmium	ND @ 0.001 mg/L
Chromium	0.003 mg/L
Copper	0.001 mg/L
Iron	0.277 mg/L
Lead	ND @ 0.002 mg/L
Manganese	0.067 mg/L
Mercury	ND @ 0.0001 mg/L
Nickel	ND @ 0.002 mg/L
Selenium	ND @ 0.002 mg/L
Silver	ND @ 0.001 mg/L
Zinc	ND @ 0.003 mg/L
Dichlorodifluoromethane	ND @ 0.005 mg/L
Chloromethane	ND @ 0.005 mg/L
Vinyl Chloride	ND @ 0.005 mg/L
Bromomethane	ND @ 0.005 mg/L
Chloroethane	ND @ 0.005 mg/L
Trichlorofluoromethane	ND @ 0.005 mg/L
1,1-Dichloroethene	ND @ 0.005 mg/L
Acetone	0.009 mg/L[B,J]
Carbon Disulfide	ND @ 0.010 mg/L
Dichloromethane (Methylene Chloride)	0.009 mg/L[B]
trans-1,2-Dichloroethene	ND @ 0.005 mg/L
1,1-Dichloroethane	ND @ 0.005 mg/L
Vinyl Acetate	ND @ 0.010 mg/L
2-Butanone (Methyl Ethyl Ketone)	ND @ 0.010 mg/L
2,2-Dichloropropane	ND @ 0.005 mg/L
cis-1,2-Dichloroethene	ND @ 0.005 mg/L
Bromochloromethane	ND @ 0.005 mg/L
Chloroform	ND @ 0.005 mg/L
1,1,1-Trichloroethane	ND @ 0.005 mg/L
Carbon Tetrachloride	ND @ 0.005 mg/L
1,1-Dichloropropene	ND @ 0.005 mg/L
Benzene	ND @ 0.005 mg/L
1,2-Dichloroethane	ND @ 0.005 mg/L
Trichloroethene	ND @ 0.005 mg/L
1,2-Dichloropropane	ND @ 0.005 mg/L
Dibromomethane	ND @ 0.005 mg/L
Bromodichloromethane	ND @ 0.005 mg/L
cis-1,3-Dichloropropene	ND @ 0.005 mg/L
4-Methyl-2-pentanone (MIBK)	ND @ 0.010 mg/L
Toluene	ND @ 0.005 mg/L
trans 1,3-Dichloropropene	ND @ 0.005 mg/L
1,1,2-Trichloroethane	ND @ 0.005 mg/L
Tetrachloroethene	ND @ 0.005 mg/L
1,3-Dichloropropane	ND @ 0.005 mg/L
Dibromochloromethane	ND @ 0.005 mg/L
2-Hexanone (Methyl butyl ketone)	ND @ 0.010 mg/L
1,2-Dibromoethane (EDB)	ND @ 0.005 mg/L
Chlorobenzene	ND @ 0.005 mg/L
1-Chlorohexane	ND @ 0.005 mg/L

TOTAL CONSTITUENTS	CONCENTRATION
Ethyl Benzene	ND @ 0.005 mg/L
1,1,1,2-Tetrachloroethane	ND @ 0.005 mg/L
1,2-Xylene	ND @ 0.005 mg/L
1,3-Xylene & 1,4-Xylene	ND @ 0.005 mg/L
Styrene	ND @ 0.005 mg/L
Bromoform	ND @ 0.005 mg/L
Isopropylbenzene (Cumene)	ND @ 0.005 mg/L
Bromobenzene	ND @ 0.005 mg/L
1,2,3-Trichloropropane	ND @ 0.005 mg/L
1,1,2,2-Tetrachloroethane	ND @ 0.005 mg/L
n-Propylbenzene	ND @ 0.005 mg/L
2-Chlorotoluene	ND @ 0.005 mg/L
3-Chlorotoluene	ND @ 0.005 mg/L
4-Chlorotoluene	ND @ 0.005 mg/L
1,3,5-Trimethylbenzene	ND @ 0.005 mg/L
tert-Butylbenzene	ND @ 0.005 mg/L
1,2,4-Trimethylbenzene	ND @ 0.005 mg/L
sec-Butylbenzene	ND @ 0.005 mg/L
Isopropyl toluene (Cymene)	ND @ 0.005 mg/L
n-Butylbenzene	ND @ 0.005 mg/L
1,2-Dibromo-3-chloropropane (DBCP)	ND @ 0.005 mg/L
Hexachlorobutadiene	ND @ 0.005 mg/L
1,2,3-Trichlorobenzene	ND @ 0.005 mg/L
Phenol	ND @ 0.01 mg/L
Aniline	ND @ 0.01 mg/L
Bis-(2-Chloroethyl)ether	ND @ 0.01 mg/L
2-Chlorophenol	ND @ 0.01 mg/L
1,3-Dichlorobenzene	ND @ 0.01 mg/L
1,4-Dichlorobenzene	ND @ 0.01 mg/L
Benzyl Alcohol	ND @ 0.01 mg/L
1,2-Dichlorobenzene	ND @ 0.01 mg/L
2-Methylphenol	ND @ 0.01 mg/L
4-Methylphenol	ND @ 0.01 mg/L
Bis-(2-Chloroisopropyl)ether	ND @ 0.01 mg/L
N-Nitroso-di-n-propylamine	ND @ 0.01 mg/L
Hexachloroethane	ND @ 0.01 mg/L
Nitrobenzene	ND @ 0.01 mg/L
Isophorone	ND @ 0.01 mg/L
2-Nitrophenol	ND @ 0.01 mg/L
2,4-Dimethylphenol	ND @ 0.01 mg/L
Bis-(2-Chloroethoxy)methane	ND @ 0.01 mg/L
Benzoic Acid	ND @ 0.051 mg/L
2,4-Dichlorophenol	ND @ 0.01 mg/L
1,2,4-Trichlorobenzene	ND @ 0.01 mg/L
Naphthalene	ND @ 0.01 mg/L
4-Chloroaniline	ND @ 0.01 mg/L
1,1,2,3,4,4-Hexachloro-1,3-butadiene	ND @ 0.01 mg/L
4-Chloro-3-methylphenol	ND @ 0.01 mg/L
2-Methylnaphthalene	ND @ 0.01 mg/L
1,2,3,4,5,5-Hexachloro-1,3-cyclopentadiene	ND @ 0.01 mg/L
2,4,6-Trichlorophenol	ND @ 0.01 mg/L

TOTAL CONSTITUENTS	CONCENTRATION
2,4,5-Trichlorophenol	ND @ 0.01 mg/L
2-Chloronaphthalene	ND @ 0.01 mg/L
2-Nitroaniline	ND @ 0.051 mg/L
Dimethyl Phthalate	ND @ 0.01 mg/L
Acenaphthylene	ND @ 0.01 mg/L
2,6-Dinitrotoluene	ND @ 0.01 mg/L
3-Nitroaniline	ND @ 0.051 mg/L
Acenaphthene	ND @ 0.01 mg/L
2,4-Dinitrophenol	ND @ 0.051 mg/L
4-Nitrophenol	ND @ 0.051 mg/L
Dibenzofuran	ND @ 0.01 mg/L
2,4-Dinitrotoluene	ND @ 0.01 mg/L
Diethyl Phthalate	ND @ 0.01 mg/L
Fluorene	ND @ 0.01 mg/L
4-Chlorophenyl phenyl ether	ND @ 0.01 mg/L
4-Nitroaniline	ND @ 0.051 mg/L
2-Methyl-4,6-Dinitrophenol	ND @ 0.051 mg/L
N-Nitrosodiphenylamine	ND @ 0.01 mg/L
Diphenyl Amine	ND @ 0.01 mg/L
Azobenzene	ND @ 0.01 mg/L
4-Bromophenyl phenyl ether	ND @ 0.01 mg/L
Hexachlorobenzene	ND @ 0.01 mg/L
Pentachlorophenol	ND @ 0.051 mg/L
Phenanthrene	ND @ 0.01 mg/L
Anthracene	ND @ 0.01 mg/L
Carbazole	ND @ 0.01 mg/L
Dibutyl Phthalate	ND @ 0.01 mg/L
Fluoranthene	ND @ 0.01 mg/L
Benzidine	ND @ 0.051 mg/L
Pyrene	ND @ 0.01 mg/L
Butyl Benzyl Phthalate	ND @ 0.01 mg/L
3,3'-Dichlorobenzidine	ND @ 0.02 mg/L
Benzo(A)Anthracene	ND @ 0.01 mg/L
Chrysene	ND @ 0.01 mg/L
Bis(2-Ethylhexyl)Phthalate	ND @ 0.01 mg/L[B]
Dioctylphthalate	ND @ 0.01 mg/L
Benzo(B)Fluoranthene	ND @ 0.01 mg/L
Benzo(K)Fluoranthene	ND @ 0.01 mg/L
Benzo(A)Pyrene	ND @ 0.01 mg/L
Indeno(1,2,3-C,D)Pyrene	ND @ 0.01 mg/L
Dibenzo(A,H)Anthracene	ND @ 0.01 mg/L
Benzo(G,H,I)Perylene	ND @ 0.01 mg/L

ND = Not Detected, B = Analyte Found In Blank, J = Estimated Value

This report has been prepared and reviewed by personnel within the Division of Environmental Services. It has been approved for release.

William E. Davis, Director
Division of Environmental Services

APPENDIX C

Boone Creek Sediment Data

PHILLIP J. SHEPHERD
SECRETARY

BRERETON C. JONES
GOVERNOR

COMMONWEALTH OF KENTUCKY
NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
FRANKFORT OFFICE PARK
18 REILLY ROAD
FRANKFORT, KENTUCKY 40601

August 27, 1992

Division of Environmental Services
Report Number: A20-01149
Sample Number: 9202197

TO: Division of Water
Frankfort Office Park
Frankfort, Kentucky 40601

RE: Boone Creek Drainage

ATTN: Michael Mills

County: Fayette & Clark

Facility: DOW#04026001

Collected by: Skip Call **Date:** 04/15/92 **Time:** 1400

Delivered by: Skip Call **Date:** 04/16/92 **Time:** 1100

Received by: Polly Ellis **Date:** 04/16/92 **Time:** 1100

Sample Matrix: Sediment **Collection Method:** Grab

Sample Identification: Boone Creek near mouth

REPORT OF ANALYSIS

TOTAL CONSTITUENTS	CONCENTRATION
Aluminum	25,200 mg/Kg
Antimony	ND @ 1.74 mg/Kg
Arsenic	ND @ 0.55 mg/Kg
Barium	269 mg/Kg
Beryllium	1.83 mg/Kg
Cadmium	ND @ 0.275 mg/Kg
Calcium	31,800 mg/Kg
Chromium	25.8 mg/Kg
Cobalt	15.4 mg/Kg
Copper	14.5 mg/Kg
Iron	40,100 mg/Kg
Lead	31.7 mg/Kg
Magnesium	3,260 mg/Kg
Manganese	2,850 mg/Kg
Molybdenum	9.71 mg/Kg
Nickel	36.9 mg/Kg
Potassium	3,260 mg/Kg
Selenium	ND @ 3.21 mg/Kg
Silver	ND @ 0.55 mg/Kg
Sodium	147 mg/Kg
Strontium	115 mg/Kg
Thallium	ND @ 5.23 mg/Kg
Tin	ND @ 4.04 mg/Kg

TOTAL CONSTITUENTS	CONCENTRATION
Vanadium	39.1 mg/Kg
Zinc	70.8 mg/Kg
Cyanide, total	ND @ 0.559 mg/Kg
Oil and Grease	ND @ 10 mg/Kg
Total Volatile Solids	6.38 %
Organic Carbon	11,900 mg/Kg
Ammonia-Nitrogen	58.4 mg/Kg
Total Kjeldhal Nitrogen	990 mg/Kg
Mercury	0.084 mg/Kg
Hexachlorobenzene	ND @ 0.007 mg/Kg
Hexachlorocyclohexane,alpha isomer	ND @ 0.007 mg/Kg
Hexachlorocyclohexane,beta isomer	ND @ 0.007 mg/Kg
Hexachlorocyclohexane,gamma isomer	ND @ 0.007 mg/Kg
Hexachlorocyclohexane,delta isomer	ND @ 0.007 mg/Kg
Heptachlor	ND @ 0.007 mg/Kg
Aldrin	ND @ 0.007 mg/Kg
Chlorpyrifos	ND @ 0.007 mg/Kg
Heptachlor Epoxide	ND @ 0.007 mg/Kg
Oxychlordane	ND @ 0.007 mg/Kg
trans-Chlordane	ND @ 0.007 mg/Kg
cis-Chlordane	ND @ 0.007 mg/Kg
trans-Nonachlor	ND @ 0.007 mg/Kg
alpha-Chlordene	ND @ 0.007 mg/Kg
Chlordene	ND @ 0.007 mg/Kg
gamma-Chlordene	ND @ 0.007 mg/Kg
cis-Nonachlor	ND @ 0.007 mg/Kg
O,P'-DDE	ND @ 0.007 mg/Kg
P,P'-DDE	ND @ 0.007 mg/Kg
Dieldrin	ND @ 0.007 mg/Kg
Endrin	ND @ 0.007 mg/Kg
O,P'-DDD	ND @ 0.007 mg/Kg
P,P'-DDD	ND @ 0.007 mg/Kg
O,P'-DDT	ND @ 0.007 mg/Kg
P,P'-DDT	ND @ 0.007 mg/Kg
Total DDT	ND @ 0.007 mg/Kg
Methoxychlor	ND @ 0.007 mg/Kg
Mirex	ND @ 0.007 mg/Kg
Endosulfan I	ND @ 0.007 mg/Kg
Endosulfan II	ND @ 0.007 mg/Kg
Endosulfan Sulfate	ND @ 0.007 mg/Kg
Endrin Aldehyde	ND @ 0.007 mg/Kg
Endrin Ketone	ND @ 0.007 mg/Kg
Toxaphene	ND @ 0.068 mg/Kg
Atrazine	ND @ 0.14 mg/Kg
Alachlor	ND @ 0.034 mg/Kg
Pentachlorophenol	ND @ 0.007 mg/Kg
2,3,4,5-Tetrachlorophenol	ND @ 0.007 mg/Kg
2,3,4,6-Tetrachlorophenol	ND @ 0.007 mg/Kg
Aroclor 1016	ND @ 0.068 mg/Kg
Aroclor 1221	ND @ 0.14 mg/Kg

TOTAL CONSTITUENTS	CONCENTRATION
Aroclor 1232	ND @ 0.14 mg/Kg
Aroclor 1242	ND @ 0.068 mg/Kg
Aroclor 1248	ND @ 0.068 mg/Kg
Aroclor 1254	ND @ 0.068 mg/Kg
Aroclor 1260	ND @ 0.068 mg/Kg
Aroclor 1262	ND @ 0.068 mg/Kg
Aroclor 1268	ND @ 0.068 mg/Kg
Dichlorodifluoromethane	ND @ 5.0 mg/Kg
Chloromethane	ND @ 5.0 mg/Kg
Vinyl Chloride	ND @ 5.0 mg/Kg
Bromomethane	ND @ 5.0 mg/Kg
Chloroethane	ND @ 5.0 mg/Kg
Trichlorofluoromethane	ND @ 5.0 mg/Kg
1,1-Dichloroethene	ND @ 5.0 mg/Kg
Acetone	18.4 mg/Kg[B]
Carbon Disulfide	ND @ 10.0 mg/Kg
Dichloromethane (Methylene Chloride)	903 mg/Kg[B,J]
trans-1,2-Dichloroethene	ND @ 5.0 mg/Kg
1,1-Dichloroethane	ND @ 5.0 mg/Kg
Vinyl Acetate	ND @ 10.0 mg/Kg
2-Butanone (Methyl Ethyl Ketone)	ND @ 10.0 mg/Kg
2,2-Dichloropropane	ND @ 5.0 mg/Kg
cis-1,2-Dichloroethene	ND @ 5.0 mg/Kg
Bromochloromethane	ND @ 5.0 mg/Kg
Chloroform	ND @ 5.0 mg/Kg
1,1,1-Trichloroethane	ND @ 5.0 mg/Kg
Carbon Tetrachloride	ND @ 5.0 mg/Kg
1,1-Dichloropropene	ND @ 5.0 mg/Kg
Benzene	ND @ 5.0 mg/Kg
1,2-Dichloroethane	ND @ 5.0 mg/Kg
Trichloroethene	ND @ 5.0 mg/Kg
1,2-Dichloropropane	ND @ 5.0 mg/Kg
Dibromomethane	ND @ 5.0 mg/Kg
Bromodichloromethane	ND @ 5.0 mg/Kg
cis-1,3-Dichloropropene	ND @ 5.0 mg/Kg
4-Methyl-2-pentanone (MIBK)	ND @ 10.0 mg/Kg
Toluene	1.7 mg/Kg[J]
trans 1,3-Dichloropropene	ND @ 5.0 mg/Kg
1,1,2-Trichloroethane	ND @ 5.0 mg/Kg
Tetrachloroethene	ND @ 5.0 mg/Kg
1,3-Dichloropropane	ND @ 5.0 mg/Kg
Dibromochloromethane	ND @ 5.0 mg/Kg
2-Hexanone (Methyl butyl ketone)	ND @ 10.0 mg/Kg
1,2-Dibromoethane (EDB)	ND @ 5.0 mg/Kg
Chlorobenzene	ND @ 5.0 mg/Kg
1-Chlorohexane	ND @ 5.0 mg/Kg
Ethyl Benzene	ND @ 5.0 mg/Kg
1,1,1,2-Tetrachloroethane	ND @ 5.0 mg/Kg
1,2-Xylene	ND @ 5.0 mg/Kg
1,3-Xylene & 1,4-Xylene	ND @ 5.0 mg/Kg

TOTAL CONSTITUENTS	CONCENTRATION
Styrene	ND @ 5.0 mg/Kg
Bromoform	ND @ 5.0 mg/Kg
Isopropylbenzene (Cumene)	ND @ 5.0 mg/Kg
Bromobenzene	ND @ 5.0 mg/Kg
1,2,3-Trichloropropane	ND @ 5.0 mg/Kg
1,1,2,2-Tetrachloroethane	ND @ 5.0 mg/Kg
n-Propylbenzene	ND @ 5.0 mg/Kg
2-Chlorotoluene	ND @ 5.0 mg/Kg
3-Chlorotoluene	ND @ 5.0 mg/Kg
4-Chlorotoluene	ND @ 5.0 mg/Kg
1,3,5-Trimethylbenzene	ND @ 5.0 mg/Kg
tert-Butylbenzene	ND @ 5.0 mg/Kg
1,2,4-Trimethyl benzene	ND @ 5.0 mg/Kg
sec-Butylbenzene	ND @ 5.0 mg/Kg
Isopropyl toluene (Cymene)	ND @ 5.0 mg/Kg
n-Butylbenzene	ND @ 5.0 mg/Kg
1,2-Dibromo-3-chloropropane (DBCP)	ND @ 5.0 mg/Kg
Hexachlorobutadiene	ND @ 5.0 mg/Kg
1,2,3-Trichlorobenzene	ND @ 5.0 mg/Kg
Phenol	ND @ 1.54 mg/Kg
Aniline	ND @ 1.54 mg/Kg
Bis-(2-Chloroethyl)ether	ND @ 1.54 mg/Kg
2-Chlorophenol	ND @ 1.54 mg/Kg
1,3-Dichlorobenzene	ND @ 1.54 mg/Kg
1,4-Dichlorobenzene	ND @ 1.54 mg/Kg
Benzyl Alcohol	ND @ 1.54 mg/Kg
1,2-Dichlorobenzene	ND @ 1.54 mg/Kg
2-Methylphenol	ND @ 1.54 mg/Kg
4-Methylphenol	ND @ 1.54 mg/Kg
Bis-(2-Chloroisopropyl)ether	ND @ 1.54 mg/Kg
N-Nitrosodi-n-propylamine	ND @ 1.54 mg/Kg
Hexachloroethane	ND @ 1.54 mg/Kg
Nitrobenzene	ND @ 1.54 mg/Kg
Isophorone	ND @ 1.54 mg/Kg
2-Nitrophenol	ND @ 1.54 mg/Kg
2,4-Dimethylphenol	ND @ 1.54 mg/Kg
Bis-(2-Chloroethoxy)methane	ND @ 1.54 mg/Kg
Benzoic Acid	ND @ 7.48 mg/Kg
2,4-Dichlorophenol	ND @ 1.54 mg/Kg
1,2,4-Trichlorobenzene	ND @ 1.54 mg/Kg
Naphthalene	ND @ 1.54 mg/Kg
4-Chloroaniline	ND @ 1.54 mg/Kg
1,1,2,3,4,4-Hexachloro-1,3-butadiene	ND @ 1.54 mg/Kg
4-Chloro-3-methylphenol	ND @ 1.54 mg/Kg
2-Methylnaphthalene	ND @ 1.54 mg/Kg
1,2,3,4,5,5-Hexachloro-1,3-cyclopentadiene	ND @ 1.54 mg/Kg
2,4,6-Trichlorophenol	ND @ 1.54 mg/Kg
2,4,5-Trichlorophenol	ND @ 1.54 mg/Kg
2-Chloronaphthalene	ND @ 1.54 mg/Kg
2-Nitroaniline	ND @ 7.48 mg/Kg

TOTAL CONSTITUENTS	CONCENTRATION
Dimethyl Phthalate	ND @ 1.54 mg/Kg
Acenaphthylene	ND @ 1.54 mg/Kg
2,6-Dinitrotoluene	ND @ 1.54 mg/Kg
3-Nitroaniline	ND @ 7.48 mg/Kg
Acenaphthene	ND @ 1.54 mg/Kg
2,4-Dinitrophenol	ND @ 7.48 mg/Kg
4-Nitrophenol	ND @ 7.48 mg/Kg
Dibenzofuran	ND @ 1.54 mg/Kg
2,4-Dinitrotoluene	ND @ 1.54 mg/Kg
Diethyl Phthalate	ND @ 1.54 mg/Kg
Fluorene	ND @ 1.54 mg/Kg
4-Chlorophenyl phenyl ether	ND @ 1.54 mg/Kg
4-Nitroaniline	ND @ 7.48 mg/Kg
2-Methyl-4,6-Dinitrophenol	ND @ 7.48 mg/Kg
N-Nitrosodiphenylamine	ND @ 1.54 mg/Kg
Diphenyl Amine	ND @ 1.54 mg/Kg
Azobenzene	ND @ 1.54 mg/Kg
4-Bromophenyl phenyl ether	ND @ 1.54 mg/Kg
Pentachlorophenol	ND @ 7.48 mg/Kg
Phenanthrene	ND @ 1.54 mg/Kg
Anthracene	ND @ 1.54 mg/Kg
Carbazole	ND @ 1.54 mg/Kg
Dibutyl Phthalate	ND @ 1.54 mg/Kg
Fluoranthene	ND @ 1.54 mg/Kg
Benzidine	ND @ 7.48 mg/Kg
Pyrene	ND @ 1.54 mg/Kg
Butyl Benzyl Phthalate	ND @ 1.54 mg/Kg
3,3'-Dichlorobenzidine	ND @ 3.09 mg/Kg
Benzo(A)Anthracene	ND @ 1.54 mg/Kg
Chrysene	ND @ 1.54 mg/Kg
Bis(2-Ethylhexyl)Phthalate	0.34 mg/Kg^{J}
Di-n-octylphthalate	ND @ 1.54 mg/Kg
Benzo(B)Fluoranthene	ND @ 1.54 mg/Kg
Benzo(K)Fluoranthene	ND @ 1.54 mg/Kg
Benzo(A)Pyrene	ND @ 1.54 mg/Kg
Indeno(1,2,3-C,D)Pyrene	ND @ 1.54 mg/Kg
Dibenzo(A,H)Anthracene	ND @ 1.54 mg/Kg
Benzo(G,H,I)Perylene	ND @ 1.54 mg/Kg
Butyl 2-Methyl Propyl Phthalate	6.05 mg/Kg^{J,N}
4-Methyl-3-pentene-2-one	3.01 mg/Kg^{J,N}
3-Pentene-2-one	6.31 mg/Kg^{J,N}

ND = Not Detected, B = Analyte Found In Blank, J = Estimated Value
N = Presumptive Identification

This report has been prepared and reviewed by personnel within the Division of Environmental Services. It has been approved for release.

William E. Davis, Director
Division of Environmental Services

PHILLIP J. SHEPHERD
SECRETARY

BRERETON C. JONES
GOVERNOR

COMMONWEALTH OF KENTUCKY
NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
FRANKFORT OFFICE PARK
18 REILLY ROAD
FRANKFORT, KENTUCKY 40601

September 1, 1992

Division of Environmental Services
Report Number: A20-01150
Sample Number: 9202198

TO: Division of Water
Frankfort Office Park
Frankfort, Kentucky 40601

RE: Boone Creek Drainage

ATTN: Michael Mills

County: Fayette & Clark

Facility: DOW#04026002

Collected by: Skip Call **Date:** 04/15/92 **Time:** 1215

Delivered by: Skip Call **Date:** 04/16/92 **Time:** 1100

Received by: Polly Ellis **Date:** 04/16/92 **Time:** 1100

Sample Matrix: Sediment **Collection Method:** Grab

Sample Identification: Boone Creek at Grimes Mill

REPORT OF ANALYSIS

TOTAL CONSTITUENTS	CONCENTRATION
Cyanide, total	ND @ 0.40 mg/Kg
Oil and Grease	118 mg/Kg
Total Volatile Solids	9.29 %
Organic Carbon	9,050 mg/Kg
Ammonia-Nitrogen	64.9 mg/Kg
Total Kjeldhal Nitrogen	980 mg/Kg
Aluminum	21,800 mg/Kg
Arsenic	ND @ 0.556 mg/Kg
Barium	579 mg/Kg
Cadmium	ND @ 0.278 mg/Kg
Chromium	42.4 mg/Kg
Copper	16.9 mg/Kg
Iron	121,000 mg/Kg
Lead	77.0 mg/Kg
Manganese	6,010 mg/Kg
Mercury	0.082 mg/Kg
Nickel	61.3 mg/Kg
Zinc	116 mg/Kg
Hexachlorobenzene	ND @ 0.008 mg/Kg
Hexachlorocyclohexane,alpha isomer	ND @ 0.008 mg/Kg
Hexachlorocyclohexane,beta isomer	ND @ 0.008 mg/Kg
Hexachlorocyclohexane,gamma isomer	ND @ 0.008 mg/Kg
Hexachlorocyclohexane,delta isomer	ND @ 0.008 mg/Kg

TOTAL CONSTITUENTS	CONCENTRATION
Heptachlor	ND @ 0.008 mg/Kg
Aldrin	ND @ 0.008 mg/Kg
Chlorpyrifos	ND @ 0.008 mg/Kg
Heptachlor Epoxide	ND @ 0.008 mg/Kg
Oxychlordane	ND @ 0.008 mg/Kg
trans-Chlordane	ND @ 0.008 mg/Kg
cis-Chlordane	ND @ 0.008 mg/Kg
trans-Nonachlor	ND @ 0.008 mg/Kg
alpha-Chlordene	ND @ 0.008 mg/Kg
Chlordene	ND @ 0.008 mg/Kg
gamma-Chlordene	ND @ 0.008 mg/Kg
cis-Nonachlor	ND @ 0.008 mg/Kg
O,P'-DDE	ND @ 0.008 mg/Kg
P,P'-DDE	ND @ 0.008 mg/Kg
Dieldrin	ND @ 0.008 mg/Kg
Endrin	ND @ 0.008 mg/Kg
O,P'-DDD	ND @ 0.008 mg/Kg
P,P'-DDD	ND @ 0.008 mg/Kg
O,P'-DDT	ND @ 0.008 mg/Kg
P,P'-DDT	ND @ 0.008 mg/Kg
Total DDT	ND @ 0.008 mg/Kg
Methoxychlor	ND @ 0.008 mg/Kg
Mirex	ND @ 0.008 mg/Kg
Endosulfan I	ND @ 0.008 mg/Kg
Endosulfan II	ND @ 0.008 mg/Kg
Endosulfan Sulfate	ND @ 0.008 mg/Kg
Endrin Aldehyde	ND @ 0.008 mg/Kg
Endrin Ketone	ND @ 0.008 mg/Kg
Toxaphene	ND @ 0.084 mg/Kg
Atrazine	ND @ 0.17 mg/Kg
Alachlor	ND @ 0.042 mg/Kg
Pentachlorophenol	ND @ 0.008 mg/Kg
2,3,4,5-Tetrachlorophenol	ND @ 0.008 mg/Kg
2,3,4,6-Tetrachlorophenol	ND @ 0.008 mg/Kg
Aroclor 1016	ND @ 0.084 mg/Kg
Aroclor 1221	ND @ 0.17 mg/Kg
Aroclor 1232	ND @ 0.17 mg/Kg
Aroclor 1242	ND @ 0.084 mg/Kg
Aroclor 1248	ND @ 0.084 mg/Kg
Aroclor 1254	ND @ 0.084 mg/Kg
Aroclor 1260	ND @ 0.084 mg/Kg
Aroclor 1262	ND @ 0.084 mg/Kg
Aroclor 1268	ND @ 0.084 mg/Kg
Dichlorodifluoromethane	ND @ 5.0 mg/Kg
Chloromethane	ND @ 5.0 mg/Kg
Vinyl Chloride	ND @ 5.0 mg/Kg
Bromomethane	ND @ 5.0 mg/Kg
Chloroethane	ND @ 5.0 mg/Kg
Trichlorofluoromethane	ND @ 5.0 mg/Kg
1,1-Dichloroethene	ND @ 5.0 mg/Kg

TOTAL CONSTITUENTS	CONCENTRATION
Acetone	23.4 mg/Kg[B]
Carbon Disulfide	ND @ 10.0 mg/Kg
Dichloromethane (Methylene Chloride)	1,020 mg/Kg[B,J]
trans-1,2-Dichloroethene	ND @ 5.0 mg/Kg
1,1-Dichloroethane	ND @ 5.0 mg/Kg
Vinyl Acetate	ND @ 10.0 mg/Kg
2-Butanone (Methyl Ethyl Ketone)	ND @ 10.0 mg/Kg
2,2-Dichloropropane	ND @ 5.0 mg/Kg
cis-1,2-Dichloroethene	ND @ 5.0 mg/Kg
Bromochloromethane	ND @ 5.0 mg/Kg
Chloroform	ND @ 5.0 mg/Kg
1,1,1-Trichloroethane	ND @ 5.0 mg/Kg
Carbon Tetrachloride	ND @ 5.0 mg/Kg
1,1-Dichloropropene	ND @ 5.0 mg/Kg
Benzene	ND @ 5.0 mg/Kg
1,2-Dichloroethane	ND @ 5.0 mg/Kg
Trichloroethene	ND @ 5.0 mg/Kg
1,2-Dichloropropane	ND @ 5.0 mg/Kg
Dibromomethane	ND @ 5.0 mg/Kg
Bromodichloromethane	ND @ 5.0 mg/Kg
cis-1,3-Dichloropropene	ND @ 5.0 mg/Kg
4-Methyl-2-pentanone (MIBK)	ND @ 10.0 mg/Kg
Toluene	1.3 mg/Kg[J]
trans 1,3-Dichloropropene	ND @ 5.0 mg/Kg
1,1,2-Trichloroethane	ND @ 5.0 mg/Kg
Tetrachloroethene	ND @ 5.0 mg/Kg
1,3-Dichloropropane	ND @ 5.0 mg/Kg
Dibromochloromethane	ND @ 5.0 mg/Kg
2-Hexanone (Methyl butyl ketone)	ND @ 10.0 mg/Kg
1,2-Dibromoethane (EDB)	ND @ 5.0 mg/Kg
Chlorobenzene	ND @ 5.0 mg/Kg
1-Chlorohexane	ND @ 5.0 mg/Kg
Ethyl Benzene	ND @ 5.0 mg/Kg
1,1,1,2-Tetrachloroethane	ND @ 5.0 mg/Kg
1,2-Xylene	ND @ 5.0 mg/Kg
1,3-Xylene & 1,4-Xylene	ND @ 5.0 mg/Kg
Styrene	ND @ 5.0 mg/Kg
Bromoform	ND @ 5.0 mg/Kg
Isopropylbenzene (Cumene)	ND @ 5.0 mg/Kg
Bromobenzene	ND @ 5.0 mg/Kg
1,2,3-Trichloropropane	ND @ 5.0 mg/Kg
1,1,2,2-Tetrachloroethane	ND @ 5.0 mg/Kg
n-Propylbenzene	ND @ 5.0 mg/Kg
2-Chlorotoluene	ND @ 5.0 mg/Kg
3-Chlorotoluene	ND @ 5.0 mg/Kg
4-Chlorotoluene	ND @ 5.0 mg/Kg
1,3,5-Trimethylbenzene	ND @ 5.0 mg/Kg
tert-Butylbenzene	ND @ 5.0 mg/Kg
1,2,4-Trimethyl benzene	ND @ 5.0 mg/Kg
sec-Butylbenzene	ND @ 5.0 mg/Kg

TOTAL CONSTITUENTS	CONCENTRATION
Isopropyl toluene (Cymene)	ND @ 5.0 mg/Kg
n-Butylbenzene	ND @ 5.0 mg/Kg
1,2-Dibromo-3-chloropropane (DBCP)	ND @ 5.0 mg/Kg
Hexachlorobutadiene	ND @ 5.0 mg/Kg
1,2,3-Trichlorobenzene	ND @ 5.0 mg/Kg
Phenol	ND @ 1.87 mg/Kg
Aniline	ND @ 1.87 mg/Kg
Bis-(2-Chloroethyl)ether	ND @ 1.87 mg/Kg
2-Chlorophenol	ND @ 1.87 mg/Kg
1,3-Dichlorobenzene	ND @ 1.87 mg/Kg
1,4-Dichlorobenzene	ND @ 1.87 mg/Kg
Benzyl Alcohol	ND @ 1.87 mg/Kg
1,2-Dichlorobenzene	ND @ 1.87 mg/Kg
2-Methylphenol	ND @ 1.87 mg/Kg
4-Methylphenol	ND @ 1.87 mg/Kg
Bis-(2-Chloroisopropyl)ether	ND @ 1.87 mg/Kg
N-Nitrosodi-n-propylamine	ND @ 1.87 mg/Kg
Hexachloroethane	ND @ 1.87 mg/Kg
Nitrobenzene	ND @ 1.87 mg/Kg
Isophorone	ND @ 1.87 mg/Kg
2-Nitrophenol	ND @ 1.87 mg/Kg
2,4-Dimethylphenol	ND @ 1.87 mg/Kg
Bis-(2-Chloroethoxy)methane	ND @ 1.87 mg/Kg
Benzoic Acid	ND @ 9.06 mg/Kg
2,4-Dichlorophenol	ND @ 1.87 mg/Kg
1,2,4-Trichlorobenzene	ND @ 1.87 mg/Kg
Naphthalene	ND @ 1.87 mg/Kg
4-Chloroaniline	ND @ 1.87 mg/Kg
1,1,2,3,4,4-Hexachloro-1,3-butadiene	ND @ 1.87 mg/Kg
4-Chloro-3-methylphenol	ND @ 1.87 mg/Kg
2-Methylnaphthalene	ND @ 1.87 mg/Kg
1,2,3,4,5,5-Hexachloro-1,3-cyclopentadiene	ND @ 1.87 mg/Kg
2,4,6-Trichlorophenol	ND @ 1.87 mg/Kg
2,4,5-Trichlorophenol	ND @ 1.87 mg/Kg
2-Chloronaphthalene	ND @ 1.87 mg/Kg
2-Nitroaniline	ND @ 9.06 mg/Kg
Dimethyl Phthalate	ND @ 1.87 mg/Kg
Acenaphthylene	ND @ 1.87 mg/Kg
2,6-Dinitrotoluene	ND @ 1.87 mg/Kg
3-Nitroaniline	ND @ 9.06 mg/Kg
Acenaphthene	ND @ 1.87 mg/Kg
2,4-Dinitrophenol	ND @ 9.06 mg/Kg
4-Nitrophenol	ND @ 9.06 mg/Kg
Dibenzofuran	ND @ 1.87 mg/Kg
2,4-Dinitrotoluene	ND @ 1.87 mg/Kg
Diethyl Phthalate	ND @ 1.87 mg/Kg
Fluorene	ND @ 1.87 mg/Kg
4-Chlorophenyl phenyl ether	ND @ 1.87 mg/Kg
4-Nitroaniline	ND @ 9.06 mg/Kg
2-Methyl-4,6-Dinitrophenol	ND @ 9.06 mg/Kg

TOTAL CONSTITUENTS	CONCENTRATION
N-Nitrosodiphenylamine	ND @ 1.87 mg/Kg
Diphenyl Amine	ND @ 1.87 mg/Kg
Azobenzene	ND @ 1.87 mg/Kg
4-Bromophenyl phenyl ether	ND @ 1.87 mg/Kg
Hexachlorobenzene	ND @ 1.87 mg/Kg
Pentachlorophenol	ND @ 9.06 mg/Kg
Phenanthrene	ND @ 1.87 mg/Kg
Anthracene	ND @ 1.87 mg/Kg
Carbazole	ND @ 1.87 mg/Kg
Dibutyl Phthalate	ND @ 1.87 mg/Kg
Fluoranthene	ND @ 1.87 mg/Kg
Benzidine	ND @ 9.06 mg/Kg
Pyrene	ND @ 1.87 mg/Kg
Butyl Benzyl Phthalate	ND @ 1.87 mg/Kg
3,3'-Dichlorobenzidine	ND @ 3.74 mg/Kg
Benzo(A)Anthracene	ND @ 1.87 mg/Kg
Chrysene	ND @ 1.87 mg/Kg
Bis(2-Ethylhexyl)Phthalate	ND @ 1.87 mg/Kg
Di-n-octylphthalate	ND @ 1.87 mg/Kg
Benzo(B)Fluoranthene	ND @ 1.87 mg/Kg
Benzo(K)Fluoranthene	ND @ 1.87 mg/Kg
Benzo(A)Pyrene	ND @ 1.87 mg/Kg
Indeno(1,2,3-C,D)Pyrene	ND @ 1.87 mg/Kg
Dibenzo(A,H)Anthracene	ND @ 1.87 mg/Kg
Benzo(G,H,I)Perylene	ND @ 1.87 mg/Kg
4-Methyl-3-pentene-2-one	19.3 mg/Kg^{J,N}
3-Pentene-2-one	4.32 mg/Kg^{J,N}

ND = Not Detected, B = Analyte Found In Blank, J = Estimated Value
N = Presumptive Identification

This report has been prepared and reviewed by personnel within the Division of Environmental Services. It has been approved for release.

William E. Davis, Director
Division of Environmental Services

PHILLIP J. SHEPHERD
SECRETARY

BRERETON C. JONES
GOVERNOR

COMMONWEALTH OF KENTUCKY
NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
FRANKFORT OFFICE PARK
18 REILLY ROAD
FRANKFORT, KENTUCKY 40601

August 27, 1992

Division of Environmental Services
Report Number: A20-01151
Sample Number: 9202199

TO: Division of Water
Frankfort Office Park
Frankfort, Kentucky 40601

RE: Boone Creek Drainage

ATTN: Michael Mills

County: Fayette & Clark

Facility: DOW#04026003

Collected by: Skip Call **Date:** 04/15/92 **Time:** 1125

Delivered by: Skip Call **Date:** 04/16/92 **Time:** 1100

Received by: Polly Ellis **Date:** 04/16/92 **Time:** 1100

Sample Matrix: Sediment **Collection Method:** Grab

Sample Identification: Boone Creek / Ky 418 Bridge

REPORT OF ANALYSIS

TOTAL CONSTITUENTS	CONCENTRATION
Aluminum	20,400 mg/Kg
Antimony	ND @ 2.75 mg/Kg
Arsenic	ND @ 0.866 mg/Kg
Barium	318 mg/Kg
Beryllium	2.89 mg/Kg
Cadmium	ND @ 0.434 mg/Kg
Calcium	40,200 mg/Kg
Chromium	36.0 mg/Kg
Cobalt	19.1 mg/Kg
Copper	16.5 mg/Kg
Iron	85,600 mg/Kg
Lead	47.4 mg/Kg
Magnesium	2,650 mg/Kg
Manganese	3,370 mg/Kg
Molybdenum	ND @ 1.30 mg/Kg
Nickel	39.6 mg/Kg
Potassium	2,030 mg/Kg
Selenium	ND @ 5.06 mg/Kg
Silver	ND @ 0.866 mg/Kg
Sodium	103 mg/Kg
Strontium	117 mg/Kg
Thallium	ND @ 8.24 mg/Kg
Tin	ND @ 6.36 mg/Kg

TOTAL CONSTITUENTS	CONCENTRATION
Vanadium	50.1 mg/Kg
Zinc	138 mg/Kg
Cyanide, total	ND @ 0.549 mg/Kg
Oil and Grease	73.1 mg/Kg
Total Volatile Solids	10.3 %
Organic Carbon	14,500 mg/Kg
Ammonia-Nitrogen	90.8 mg/Kg
Total Kjeldhal Nitrogen	1,900 mg/Kg
Mercury	0.239 mg/Kg
Hexachlorobenzene	ND @ 0.015 mg/Kg
Hexachlorocyclohexane,alpha isomer	ND @ 0.015 mg/Kg
Hexachlorocyclohexane,beta isomer	ND @ 0.015 mg/Kg
Hexachlorocyclohexane,gamma isomer	ND @ 0.015 mg/Kg
Hexachlorocyclohexane,delta isomer	ND @ 0.015 mg/Kg
Heptachlor	ND @ 0.015 mg/Kg
Aldrin	ND @ 0.015 mg/Kg
Chlorpyrifos	ND @ 0.015 mg/Kg
Heptachlor Epoxide	ND @ 0.015 mg/Kg
Oxychlordane	ND @ 0.015 mg/Kg
trans-Chlordane	ND @ 0.015 mg/Kg
cis-Chlordane	ND @ 0.015 mg/Kg
trans-Nonachlor	ND @ 0.015 mg/Kg
alpha-Chlordene	ND @ 0.015 mg/Kg
Chlordene	ND @ 0.015 mg/Kg
gamma-Chlordene	ND @ 0.015 mg/Kg
cis-Nonachlor	ND @ 0.015 mg/Kg
O,P'-DDE	ND @ 0.015 mg/Kg
P,P'-DDE	ND @ 0.015 mg/Kg
Dieldrin	ND @ 0.015 mg/Kg
Endrin	ND @ 0.015 mg/Kg
O,P'-DDD	ND @ 0.015 mg/Kg
P,P'-DDD	ND @ 0.015 mg/Kg
O,P'-DDT	ND @ 0.015 mg/Kg
P,P'-DDT	ND @ 0.015 mg/Kg
Total DDT	ND @ 0.015 mg/Kg
Methoxychlor	ND @ 0.015 mg/Kg
Mirex	ND @ 0.015 mg/Kg
Endosulfan I	ND @ 0.015 mg/Kg
Endosulfan II	ND @ 0.015 mg/Kg
Endosulfan Sulfate	ND @ 0.015 mg/Kg
Endrin Aldehyde	ND @ 0.015 mg/Kg
Endrin Ketone	ND @ 0.015 mg/Kg
Toxaphene	ND @ 0.15 mg/Kg
Atrazine	ND @ 0.29 mg/Kg
Alachlor	ND @ 0.07 mg/Kg
Pentachlorophenol	ND @ 0.015 mg/Kg
2,3,4,5-Tetrachlorophenol	ND @ 0.015 mg/Kg
2,3,4,6-Tetrachlorophenol	ND @ 0.015 mg/Kg
Aroclor 1016	ND @ 0.15 mg/Kg
Aroclor 1221	ND @ 0.29 mg/Kg

TOTAL CONSTITUENTS	CONCENTRATION
Aroclor 1232	ND @ 0.29 mg/Kg
Aroclor 1242	ND @ 0.15 mg/Kg
Aroclor 1248	ND @ 0.15 mg/Kg
Aroclor 1254	ND @ 0.15 mg/Kg
Aroclor 1260	ND @ 0.15 mg/Kg
Aroclor 1262	ND @ 0.15 mg/Kg
Aroclor 1268	ND @ 0.15 mg/Kg
Dichlorodifluoromethane	ND @ 5.0 mg/Kg
Chloromethane	ND @ 5.0 mg/Kg
Vinyl Chloride	ND @ 5.0 mg/Kg
Bromomethane	ND @ 5.0 mg/Kg
Chloroethane	ND @ 5.0 mg/Kg
Trichlorofluoromethane	ND @ 5.0 mg/Kg
1,1-Dichloroethene	ND @ 5.0 mg/Kg
Acetone	50.6 mg/Kg[B]
Carbon Disulfide	ND @ 5.0 mg/Kg
Dichloromethane (Methylene Chloride)	1,250 mg/Kg[B,J]
trans-1,2-Dichloroethene	ND @ 5.0 mg/Kg
1,1-Dichloroethane	ND @ 5.0 mg/Kg
Vinyl Acetate	ND @ 10.0 mg/Kg
2-Butanone (Methyl Ethyl Ketone)	ND @ 10.0 mg/Kg
2,2-Dichloropropane	ND @ 5.0 mg/Kg
cis-1,2-Dichloroethene	ND @ 5.0 mg/Kg
Bromochloromethane	ND @ 5.0 mg/Kg
Chloroform	ND @ 5.0 mg/Kg
1,1,1-Trichloroethane	ND @ 5.0 mg/Kg
Carbon Tetrachloride	ND @ 5.0 mg/Kg
1,1-Dichloropropene	ND @ 5.0 mg/Kg
Benzene	ND @ 5.0 mg/Kg
1,2-Dichloroethane	ND @ 5.0 mg/Kg
Trichloroethene	ND @ 5.0 mg/Kg
1,2-Dichloropropane	ND @ 5.0 mg/Kg
Dibromomethane	ND @ 5.0 mg/Kg
Bromodichloromethane	ND @ 5.0 mg/Kg
cis-1,3-Dichloropropene	ND @ 5.0 mg/Kg
4-Methyl-2-pentanone (MIBK)	ND @ 10.0 mg/Kg
Toluene	1.1 mg/Kg[J]
trans 1,3-Dichloropropene	ND @ 5.0 mg/Kg
1,1,2-Trichloroethane	ND @ 5.0 mg/Kg
Tetrachloroethene	ND @ 5.0 mg/Kg
1,3-Dichloropropane	ND @ 5.0 mg/Kg
Dibromochloromethane	ND @ 5.0 mg/Kg
2-Hexanone (Methyl butyl ketone)	ND @ 10.0 mg/Kg
1,2-Dibromoethane (EDB)	ND @ 5.0 mg/Kg
Chlorobenzene	ND @ 5.0 mg/Kg
1-Chlorohexane	ND @ 5.0 mg/Kg
Ethyl Benzene	ND @ 5.0 mg/Kg
1,1,1,2-Tetrachloroethane	ND @ 5.0 mg/Kg
1,2-Xylene	ND @ 5.0 mg/Kg
1,3-Xylene & 1,4-Xylene	ND @ 5.0 mg/Kg

TOTAL CONSTITUENTS	CONCENTRATION
Styrene	ND @ 5.0 mg/Kg
Bromoform	ND @ 5.0 mg/Kg
Isopropylbenzene (Cumene)	ND @ 5.0 mg/Kg
Bromobenzene	ND @ 5.0 mg/Kg
1,2,3-Trichloropropane	ND @ 5.0 mg/Kg
1,1,2,2-Tetrachloroethane	ND @ 5.0 mg/Kg
n-Propylbenzene	ND @ 5.0 mg/Kg
2-Chlorotoluene	ND @ 5.0 mg/Kg
3-Chlorotoluene	ND @ 5.0 mg/Kg
4-Chlorotoluene	ND @ 5.0 mg/Kg
1,3,5-Trimethylbenzene	ND @ 5.0 mg/Kg
tert-Butylbenzene	ND @ 5.0 mg/Kg
1,2,4-Trimethyl benzene	ND @ 5.0 mg/Kg
sec-Butylbenzene	ND @ 5.0 mg/Kg
Isopropyl toluene (Cymene)	ND @ 5.0 mg/Kg
n-Butylbenzene	ND @ 5.0 mg/Kg
1,2-Dibromo-3-chloropropane (DBCP)	ND @ 5.0 mg/Kg
Hexachlorobutadiene	ND @ 5.0 mg/Kg
1,2,3-Trichlorobenzene	ND @ 5.0 mg/Kg
Phenol	ND @ 2.95 mg/Kg
Aniline	ND @ 2.95 mg/Kg
Bis-(2-Chloroethyl)ether	ND @ 2.95 mg/Kg
2-Chlorophenol	ND @ 2.95 mg/Kg
1,3-Dichlorobenzene	ND @ 2.95 mg/Kg
1,4-Dichlorobenzene	ND @ 2.95 mg/Kg
Benzyl Alcohol	ND @ 2.95 mg/Kg
1,2-Dichlorobenzene	ND @ 2.95 mg/Kg
2-Methylphenol	ND @ 2.95 mg/Kg
4-Methylphenol	ND @ 2.95 mg/Kg
Bis-(2-Chloroisopropyl)ether	ND @ 2.95 mg/Kg
N-Nitrosodi-n-propylamine	ND @ 2.95 mg/Kg
Hexachloroethane	ND @ 2.95 mg/Kg
Nitrobenzene	ND @ 2.95 mg/Kg
Isophorone	ND @ 2.95 mg/Kg
2-Nitrophenol	ND @ 2.95 mg/Kg
2,4-Dimethylphenol	ND @ 2.95 mg/Kg
Bis-(2-Chloroethoxy)methane	ND @ 2.95 mg/Kg
Benzoic Acid	ND @ 14.3 mg/Kg
2,4-Dichlorophenol	ND @ 2.95 mg/Kg
1,2,4-Trichlorobenzene	ND @ 2.95 mg/Kg
Naphthalene	ND @ 2.95 mg/Kg
4-Chloroaniline	ND @ 2.95 mg/Kg
1,1,2,3,4,4-Hexachloro-1,3-butadiene	ND @ 2.95 mg/Kg
4-Chloro-3-methylphenol	ND @ 2.95 mg/Kg
2-Methylnaphthalene	ND @ 2.95 mg/Kg
1,2,3,4,5,5-Hexachloro-1,3-cyclopentadiene	ND @ 2.95 mg/Kg
2,4,6-Trichlorophenol	ND @ 2.95 mg/Kg
2,4,5-Trichlorophenol	ND @ 2.95 mg/Kg
2-Chloronaphthalene	ND @ 2.95 mg/Kg
2-Nitroaniline	ND @ 14.3 mg/Kg

TOTAL CONSTITUENTS	CONCENTRATION
Dimethyl Phthalate	ND @ 2.95 mg/Kg
Acenaphthylene	ND @ 2.95 mg/Kg
2,6-Dinitrotoluene	ND @ 2.95 mg/Kg
3-Nitroaniline	ND @ 14.3 mg/Kg
Acenaphthene	ND @ 2.95 mg/Kg
2,4-Dinitrophenol	ND @ 14.3 mg/Kg
4-Nitrophenol	ND @ 14.3 mg/Kg
Dibenzofuran	ND @ 2.95 mg/Kg
2,4-Dinitrotoluene	ND @ 2.95 mg/Kg
Diethyl Phthalate	ND @ 2.95 mg/Kg
Fluorene	ND @ 2.95 mg/Kg
4-Chlorophenyl phenyl ether	ND @ 2.95 mg/Kg
4-Nitroaniline	ND @ 14.3 mg/Kg
2-Methyl-4,6-Dinitrophenol	ND @ 14.3 mg/Kg
N-Nitrosodiphenylamine	ND @ 2.95 mg/Kg
Diphenyl Amine	ND @ 2.95 mg/Kg
Azobenzene	ND @ 2.95 mg/Kg
4-Bromophenyl phenyl ether	ND @ 2.95 mg/Kg
Pentachlorophenol	ND @ 14.3 mg/Kg
Phenanthrene	ND @ 2.95 mg/Kg
Anthracene	ND @ 2.95 mg/Kg
Carbazole	ND @ 2.95 mg/Kg
Dibutyl Phthalate	ND @ 2.95 mg/Kg
Fluoranthene	ND @ 2.95 mg/Kg
Benzidine	ND @ 14.3 mg/Kg
Pyrene	ND @ 2.95 mg/Kg
Butyl Benzyl Phthalate	ND @ 2.95 mg/Kg
3,3'-Dichlorobenzidine	ND @ 5.89 mg/Kg
Benzo(A)Anthracene	ND @ 2.95 mg/Kg
Chrysene	ND @ 2.95 mg/Kg
Bis(2-Ethylhexyl)Phthalate	ND @ 2.95 mg/Kg
Di-n-octylphthalate	ND @ 2.95 mg/Kg
Benzo(B)Fluoranthene	ND @ 2.95 mg/Kg
Benzo(K)Fluoranthene	ND @ 2.95 mg/Kg
Benzo(A)Pyrene	ND @ 2.95 mg/Kg
Indeno(1,2,3-C,D)Pyrene	ND @ 2.95 mg/Kg
Dibenzo(A,H)Anthracene	ND @ 2.95 mg/Kg
Benzo(G,H,I)Perylene	ND @ 2.95 mg/Kg
Bis (2-Ethylhexyl) Adipate	3.01 mg/Kg
3-Pentene-2-one	21.3 mg/Kg^{J,N}
1,1,2,2-Tetramethyl cyclopropane	9.92 mg/Kg^{J,N}

ND = Not Detected, B = Analyte Found In Blank, J = Estimated Value
N = Presumptive Identification

This report has been prepared and reviewed by personnel within the Division of Environmental Services. It has been approved for release.

William E. Davis

William E. Davis, Director
Division of Environmental Services

PHILLIP J. SHEPHERD
SECRETARY

BRERETON C. JONES
GOVERNOR

COMMONWEALTH OF KENTUCKY
NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
FRANKFORT OFFICE PARK
18 REILLY ROAD
FRANKFORT, KENTUCKY 40601

August 27, 1992

Division of Environmental Services
Report Number: A20-01152
Sample Number: 9202200

TO: Division of Water
Frankfort Office Park
Frankfort, Kentucky 40601

RE: Boone Creek Drainage

ATTN: Michael Mills

County: Fayette & Clark

Facility: DOW#04026004

Collected by: Skip Call **Date:** 04/15/92 **Time:** 1050

Delivered by: Skip Call **Date:** 04/16/92 **Time:** 1100

Received by: Polly Ellis **Date:** 04/16/92 **Time:** 1100

Sample Matrix: Sediment **Collection Method:** Grab

Sample Identification: Boone Creek / Sulfer Well Road

REPORT OF ANALYSIS

TOTAL CONSTITUENTS	CONCENTRATION
Aluminum	17,500 mg/Kg
Antimony	ND @ 2.55 mg/Kg
Arsenic	ND @ 0.805 mg/Kg
Barium	207 mg/Kg
Beryllium	1.48 mg/Kg
Cadmium	ND @ 0.403 mg/Kg
Calcium	29,800 mg/Kg
Chromium	17.3 mg/Kg
Cobalt	12.3 mg/Kg
Copper	14.9 mg/Kg
Iron	31,100 mg/Kg
Lead	29.8 mg/Kg
Manganese	2,420 mg/Kg
Molybdenum	ND @ 1.21 mg/Kg
Nickel	29.7 mg/Kg
Potassium	1,470 mg/Kg
Selenium	ND @ 4.70 mg/Kg
Silver	ND @ 0.805 mg/Kg
Sodium	87.7 mg/Kg
Strontium	83.5 mg/Kg
Thallium	ND @ 7.65 mg/Kg
Tin	ND @ 5.91 mg/Kg
Vanadium	23.2 mg/Kg

TOTAL CONSTITUENTS	CONCENTRATION
Zinc	68.2 mg/Kg
Cyanide, total	ND @ 0.606 mg/Kg
Oil and Grease	737 mg/Kg
Total Volatile Solids	10.8 %
Organic Carbon	28,200 mg/Kg
Ammonia-Nitrogen	62.8 mg/Kg
Total Kjeldhal Nitrogen	2,160 mg/Kg
Mercury	0.157 mg/Kg
Hexachlorobenzene	ND @ 0.013 mg/Kg
Hexachlorocyclohexane,alpha isomer	ND @ 0.013 mg/Kg
Hexachlorocyclohexane,beta isomer	ND @ 0.013 mg/Kg
Hexachlorocyclohexane,gamma isomer	ND @ 0.013 mg/Kg
Hexachlorocyclohexane,delta isomer	ND @ 0.013 mg/Kg
Heptachlor	ND @ 0.013 mg/Kg
Aldrin	ND @ 0.013 mg/Kg
Chlorpyrifos	ND @ 0.013 mg/Kg
Heptachlor Epoxide	ND @ 0.013 mg/Kg
Oxychlordane	ND @ 0.013 mg/Kg
trans-Chlordane	ND @ 0.013 mg/Kg
cis-Chlordane	ND @ 0.013 mg/Kg
trans-Nonachlor	ND @ 0.013 mg/Kg
alpha-Chlordene	ND @ 0.013 mg/Kg
Chlordene	ND @ 0.013 mg/Kg
gamma-Chlordene	ND @ 0.013 mg/Kg
cis-Nonachlor	ND @ 0.013 mg/Kg
O,P'-DDE	ND @ 0.013 mg/Kg
P,P'-DDE	ND @ 0.013 mg/Kg
Dieldrin	ND @ 0.013 mg/Kg
Endrin	ND @ 0.013 mg/Kg
O,P'-DDD	ND @ 0.013 mg/Kg
P,P'-DDD	ND @ 0.013 mg/Kg
O,P'-DDT	ND @ 0.013 mg/Kg
P,P'-DDT	ND @ 0.013 mg/Kg
Total DDT	ND @ 0.013 mg/Kg
Methoxychlor	ND @ 0.013 mg/Kg
Mirex	ND @ 0.013 mg/Kg
Endosulfan I	ND @ 0.013 mg/Kg
Endosulfan II	ND @ 0.013 mg/Kg
Endosulfan Sulfate	ND @ 0.013 mg/Kg
Endrin Aldehyde	ND @ 0.013 mg/Kg
Endrin Ketone	ND @ 0.013 mg/Kg
Toxaphene	ND @ 0.13 mg/Kg
Atrazine	ND @ 0.26 mg/Kg
Alachlor	ND @ 0.066 mg/Kg
Pentachlorophenol	ND @ 0.013 mg/Kg
2,3,4,5-Tetrachlorophenol	ND @ 0.013 mg/Kg
2,3,4,6-Tetrachlorophenol	ND @ 0.013 mg/Kg
Aroclor 1016	ND @ 0.13 mg/Kg
Aroclor 1221	ND @ 0.26 mg/Kg
Aroclor 1232	ND @ 0.26 mg/Kg

TOTAL CONSTITUENTS	CONCENTRATION
Aroclor 1242	ND @ 0.13 mg/Kg
Aroclor 1248	ND @ 0.13 mg/Kg
Aroclor 1254	ND @ 0.13 mg/Kg
Aroclor 1260	ND @ 0.13 mg/Kg
Aroclor 1262	ND @ 0.13 mg/Kg
Aroclor 1268	ND @ 0.13 mg/Kg
Dichlorodifluoromethane	ND @ 5.0 mg/Kg
Chloromethane	ND @ 5.0 mg/Kg
Vinyl Chloride	ND @ 5.0 mg/Kg
Bromomethane	ND @ 5.0 mg/Kg
Chloroethane	ND @ 5.0 mg/Kg
Trichlorofluoromethane	ND @ 5.0 mg/Kg
1,1-Dichloroethene	ND @ 5.0 mg/Kg
Acetone	35.6 mg/Kg[B]
Carbon Disulfide	ND @ 10.0 mg/Kg
Dichloromethane (Methylene Chloride)	1,090 mg/Kg[B,J]
trans-1,2-Dichloroethene	ND @ 5.0 mg/Kg
1,1-Dichloroethane	ND @ 5.0 mg/Kg
Vinyl Acetate	ND @ 10.0 mg/Kg
2-Butanone (Methyl Ethyl Ketone)	ND @ 10.0 mg/Kg
2,2-Dichloropropane	ND @ 5.0 mg/Kg
cis-1,2-Dichloroethene	ND @ 5.0 mg/Kg
Bromochloromethane	ND @ 5.0 mg/Kg
Chloroform	ND @ 5.0 mg/Kg
1,1,1-Trichloroethane	ND @ 5.0 mg/Kg
Carbon Tetrachloride	ND @ 5.0 mg/Kg
1,1-Dichloropropene	ND @ 5.0 mg/Kg
Benzene	ND @ 5.0 mg/Kg
1,2-Dichloroethane	ND @ 5.0 mg/Kg
Trichloroethene	ND @ 5.0 mg/Kg
1,2-Dichloropropane	ND @ 5.0 mg/Kg
Dibromomethane	ND @ 5.0 mg/Kg
Bromodichloromethane	ND @ 5.0 mg/Kg
cis-1,3-Dichloropropene	ND @ 5.0 mg/Kg
4-Methyl-2-pentanone (MIBK)	ND @ 10.0 mg/Kg
Toluene	ND @ 5.0 mg/Kg
trans 1,3-Dichloropropene	ND @ 5.0 mg/Kg
1,1,2-Trichloroethane	ND @ 5.0 mg/Kg
Tetrachloroethene	ND @ 5.0 mg/Kg
1,3-Dichloropropane	ND @ 5.0 mg/Kg
Dibromochloromethane	ND @ 5.0 mg/Kg
2-Hexanone (Methyl butyl ketone)	ND @ 10.0 mg/Kg
1,2-Dibromoethane (EDB)	ND @ 5.0 mg/Kg
Chlorobenzene	ND @ 5.0 mg/Kg
1-Chlorohexane	ND @ 5.0 mg/Kg
Ethyl Benzene	ND @ 5.0 mg/Kg
1,1,1,2-Tetrachloroethane	ND @ 5.0 mg/Kg
1,2-Xylene	ND @ 5.0 mg/Kg
1,3-Xylene & 1,4-Xylene	ND @ 5.0 mg/Kg
Styrene	ND @ 5.0 mg/Kg

TOTAL CONSTITUENTS	CONCENTRATION
Bromoform	ND @ 5.0 mg/Kg
Isopropylbenzene (Cumene)	ND @ 5.0 mg/Kg
Bromobenzene	ND @ 5.0 mg/Kg
1,2,3-Trichloropropane	ND @ 5.0 mg/Kg
1,1,2,2-Tetrachloroethane	ND @ 5.0 mg/Kg
n-Propylbenzene	ND @ 5.0 mg/Kg
2-Chlorotoluene	ND @ 5.0 mg/Kg
3-Chlorotoluene	ND @ 5.0 mg/Kg
4-Chlorotoluene	ND @ 5.0 mg/Kg
1,3,5-Trimethylbenzene	ND @ 5.0 mg/Kg
tert-Butylbenzene	ND @ 5.0 mg/Kg
1,2,4-Trimethyl benzene	ND @ 5.0 mg/Kg
sec-Butylbenzene	ND @ 5.0 mg/Kg
Isopropyl toluene (Cymene)	ND @ 5.0 mg/Kg
n-Butylbenzene	ND @ 5.0 mg/Kg
1,2-Dibromo-3-chloropropane (DBCP)	ND @ 5.0 mg/Kg
Hexachlorobutadiene	ND @ 5.0 mg/Kg
1,2,3-Trichlorobenzene	ND @ 5.0 mg/Kg
Phenol	ND @ 2.63 mg/Kg
Aniline	ND @ 2.63 mg/Kg
Bis-(2-Chloroethyl)ether	ND @ 2.63 mg/Kg
2-Chlorophenol	ND @ 2.63 mg/Kg
1,3-Dichlorobenzene	ND @ 2.63 mg/Kg
1,4-Dichlorobenzene	ND @ 2.63 mg/Kg
Benzyl Alcohol	ND @ 2.63 mg/Kg
1,2-Dichlorobenzene	ND @ 2.63 mg/Kg
2-Methylphenol	ND @ 2.63 mg/Kg
4-Methylphenol	ND @ 2.63 mg/Kg
Bis-(2-Chloroisopropyl)ether	ND @ 2.63 mg/Kg
N-Nitrosodi-n-propylamine	ND @ 2.63 mg/Kg
Hexachloroethane	ND @ 2.63 mg/Kg
Nitrobenzene	ND @ 2.63 mg/Kg
Isophorone	ND @ 2.63 mg/Kg
2-Nitrophenol	ND @ 2.63 mg/Kg
2,4-Dimethylphenol	ND @ 2.63 mg/Kg
Bis-(2-Chloroethoxy)methane	ND @ 2.63 mg/Kg
Benzoic Acid	ND @ 12.8 mg/Kg
2,4-Dichlorophenol	ND @ 2.63 mg/Kg
1,2,4-Trichlorobenzene	ND @ 2.63 mg/Kg
Naphthalene	ND @ 2.63 mg/Kg
4-Chloroaniline	ND @ 2.63 mg/Kg
1,1,2,3,4,4-Hexachloro-1,3-butadiene	ND @ 2.63 mg/Kg
4-Chloro-3-methylphenol	ND @ 2.63 mg/Kg
2-Methylnaphthalene	ND @ 2.63 mg/Kg
1,2,3,4,5,5-Hexachloro-1,3-cyclopentadiene	ND @ 2.63 mg/Kg
2,4,6-Trichlorophenol	ND @ 2.63 mg/Kg
2,4,5-Trichlorophenol	ND @ 2.63 mg/Kg
2-Chloronaphthalene	ND @ 2.63 mg/Kg
2-Nitroaniline	ND @ 12.8 mg/Kg
Dimethyl Phthalate	ND @ 2.63 mg/Kg

TOTAL CONSTITUENTS	CONCENTRATION
Acenaphthylene	ND @ 2.63 mg/Kg
2,6-Dinitrotoluene	ND @ 2.63 mg/Kg
3-Nitroaniline	ND @ 12.8 mg/Kg
Acenaphthene	ND @ 2.63 mg/Kg
2,4-Dinitrophenol	ND @ 12.8 mg/Kg
4-Nitrophenol	ND @ 12.8 mg/Kg
Dibenzofuran	ND @ 2.63 mg/Kg
2,4-Dinitrotoluene	ND @ 2.63 mg/Kg
Diethyl Phthalate	ND @ 2.63 mg/Kg
Fluorene	ND @ 2.63 mg/Kg
4-Chlorophenyl phenyl ether	ND @ 2.63 mg/Kg
4-Nitroaniline	ND @ 12.8 mg/Kg
2-Methyl-4,6-Dinitrophenol	ND @ 12.8 mg/Kg
N-Nitrosodiphenylamine	ND @ 2.63 mg/Kg
Diphenyl Amine	ND @ 2.63 mg/Kg
Azobenzene	ND @ 2.63 mg/Kg
4-Bromophenyl phenyl ether	ND @ 2.63 mg/Kg
Pentachlorophenol	ND @ 12.8 mg/Kg
Phenanthrene	ND @ 2.63 mg/Kg
Anthracene	ND @ 2.63 mg/Kg
Carbazole	ND @ 2.63 mg/Kg
Dibutyl Phthalate	ND @ 2.63 mg/Kg
Fluoranthene	ND @ 2.63 mg/Kg
Benzidine	ND @ 12.8 mg/Kg
Pyrene	ND @ 2.63 mg/Kg
Butyl Benzyl Phthalate	ND @ 2.63 mg/Kg
3,3'-Dichlorobenzidine	ND @ 5.26 mg/Kg
Benzo(A)Anthracene	ND @ 2.63 mg/Kg
Chrysene	ND @ 2.63 mg/Kg
Bis(2-Ethylhexyl)Phthalate	0.54 mg/Kg^{J}
Di-n-octylphthalate	ND @ 2.63 mg/Kg
Benzo(B)Fluoranthene	ND @ 2.63 mg/Kg
Benzo(K)Fluoranthene	ND @ 2.63 mg/Kg
Benzo(A)Pyrene	ND @ 2.63 mg/Kg
Indeno(1,2,3-C,D)Pyrene	ND @ 2.63 mg/Kg
Dibenzo(A,H)Anthracene	ND @ 2.63 mg/Kg
Benzo(G,H,I)Perylene	ND @ 2.63 mg/Kg
Bis (2-Ethylhexyl) Adipate	17.1 mg/Kg
3-Pentene-2-one	7.20 mg/Kg^{J,N}

ND = Not Detected, B = Analyte Found In Blank, J = Estimated Value
N = Presumptive Identification

This report has been prepared and reviewed by personnel within the Division of Environmental Services. It has been approved for release.

William E. Davis

William E. Davis, Director
Division of Environmental Services

PHILLIP J. SHEPHERD
SECRETARY

BRERETON C. JONES
GOVERNOR

COMMONWEALTH OF KENTUCKY
NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
FRANKFORT OFFICE PARK
18 REILLY ROAD
FRANKFORT, KENTUCKY 40601

August 27, 1992

Division of Environmental Services
Report Number: A20-01153
Sample Number: 9202201

TO: Division of Water
Frankfort Office Park
Frankfort, Kentucky 40601

RE: Boone Creek Drainage

ATTN: Michael Mills

County: Fayette & Clark

Facility: DOW#04026005

Collected by: Skip Call **Date:** 04/15/92 **Time:** 1020

Delivered by: Skip Call **Date:** 04/16/92 **Time:** 1100

Received by: Polly Ellis **Date:** 04/16/92 **Time:** 1100

Sample Matrix: Sediment **Collection Method:** Grab

Sample Identification: Baughman Fork below UT

REPORT OF ANALYSIS

TOTAL CONSTITUENTS	CONCENTRATION
Aluminum	11,800 mg/Kg
Antimony	ND @ 2.22 mg/Kg
Arsenic	ND @ 0.703 mg/Kg
Barium	237 mg/Kg
Beryllium	1.05 mg/Kg
Cadmium	ND @ 0.351 mg/Kg
Calcium	29,900 mg/Kg
Chromium	13.7 mg/Kg
Cobalt	13.3 mg/Kg
Copper	ND @ 0.351 mg/Kg
Iron	26,400 mg/Kg
Lead	30.2 mg/Kg
Manganese	2,770 mg/Kg
Molybdenum	ND @ 1.05 mg/Kg
Nickel	19.9 mg/Kg
Potassium	995 mg/Kg
Selenium	ND @ 4.10 mg/Kg
Silver	ND @ 0.703 mg/Kg
Sodium	69.0 mg/Kg
Strontium	95.2 mg/Kg
Thallium	ND @ 6.67 mg/Kg
Tin	ND @ 5.15 mg/Kg
Vanadium	17.7 mg/Kg

TOTAL CONSTITUENTS	CONCENTRATION
Zinc	56.6 mg/Kg
Cyanide, total	ND @ 0.503 mg/Kg
Oil and Grease	574 mg/Kg
Total Volatile Solids	8.99 %
Organic Carbon	23,700 mg/Kg
Ammonia-Nitrogen	125 mg/Kg
Total Kjeldhal Nitrogen	1,730 mg/Kg
Mercury	0.131 mg/Kg
Hexachlorobenzene	ND @ 0.011 mg/Kg
Hexachlorocyclohexane,alpha isomer	ND @ 0.011 mg/Kg
Hexachlorocyclohexane,beta isomer	ND @ 0.011 mg/Kg
Hexachlorocyclohexane,gamma isomer	ND @ 0.011 mg/Kg
Hexachlorocyclohexane,delta isomer	ND @ 0.011 mg/Kg
Heptachlor	ND @ 0.011 mg/Kg
Aldrin	ND @ 0.011 mg/Kg
Chlorpyrifos	ND @ 0.011 mg/Kg
Heptachlor Epoxide	ND @ 0.011 mg/Kg
Oxychlordane	ND @ 0.011 mg/Kg
trans-Chlordane	ND @ 0.011 mg/Kg
cis-Chlordane	ND @ 0.011 mg/Kg
trans-Nonachlor	ND @ 0.011 mg/Kg
alpha-Chlordene	ND @ 0.011 mg/Kg
Chlordene	ND @ 0.011 mg/Kg
gamma-Chlordene	ND @ 0.011 mg/Kg
cis-Nonachlor	ND @ 0.011 mg/Kg
O,P'-DDE	ND @ 0.011 mg/Kg
P,P'-DDE	ND @ 0.011 mg/Kg
Dieldrin	ND @ 0.011 mg/Kg
Endrin	ND @ 0.011 mg/Kg
O,P'-DDD	ND @ 0.011 mg/Kg
P,P'-DDD	ND @ 0.011 mg/Kg
O,P'-DDT	ND @ 0.011 mg/Kg
P,P'-DDT	ND @ 0.011 mg/Kg
Total DDT	ND @ 0.011 mg/Kg
Methoxychlor	ND @ 0.011 mg/Kg
Mirex	ND @ 0.011 mg/Kg
Endosulfan I	ND @ 0.011 mg/Kg
Endosulfan II	ND @ 0.011 mg/Kg
Endosulfan Sulfate	ND @ 0.011 mg/Kg
Endrin Aldehyde	ND @ 0.011 mg/Kg
Endrin Ketone	ND @ 0.011 mg/Kg
Toxaphene	ND @ 0.11 mg/Kg
Atrazine	ND @ 0.22 mg/Kg
Alachlor	ND @ 0.06 mg/Kg
Pentachlorophenol	ND @ 0.011 mg/Kg
2,3,4,5-Tetrachlorophenol	ND @ 0.011 mg/Kg
2,3,4,6-Tetrachlorophenol	ND @ 0.011 mg/Kg
Aroclor 1016	ND @ 0.11 mg/Kg
Aroclor 1221	ND @ 0.22 mg/Kg
Aroclor 1232	ND @ 0.22 mg/Kg

TOTAL CONSTITUENTS	CONCENTRATION
Aroclor 1242	ND @ 0.11 mg/Kg
Aroclor 1248	ND @ 0.11 mg/Kg
Aroclor 1254	ND @ 0.11 mg/Kg
Aroclor 1260	ND @ 0.11 mg/Kg
Aroclor 1262	ND @ 0.11 mg/Kg
Aroclor 1268	ND @ 0.11 mg/Kg
Dichlorodifluoromethane	ND @ 5.0 mg/Kg
Chloromethane	ND @ 5.0 mg/Kg
Vinyl Chloride	ND @ 5.0 mg/Kg
Bromomethane	ND @ 5.0 mg/Kg
Chloroethane	ND @ 5.0 mg/Kg
Trichlorofluoromethane	ND @ 5.0 mg/Kg
1,1-Dichloroethene	ND @ 5.0 mg/Kg
Acetone	23.0 mg/Kg[B]
Carbon Disulfide	ND @ 10.0 mg/Kg
Dichloromethane (Methylene Chloride)	973 mg/Kg[B,J]
trans-1,2-Dichloroethene	ND @ 5.0 mg/Kg
1,1-Dichloroethane	ND @ 5.0 mg/Kg
Vinyl Acetate	ND @ 10.0 mg/Kg
2-Butanone (Methyl Ethyl Ketone)	ND @ 10.0 mg/Kg
2,2-Dichloropropane	ND @ 5.0 mg/Kg
cis-1,2-Dichloroethene	ND @ 5.0 mg/Kg
Bromochloromethane	ND @ 5.0 mg/Kg
Chloroform	ND @ 5.0 mg/Kg
1,1,1-Trichloroethane	ND @ 5.0 mg/Kg
Carbon Tetrachloride	ND @ 5.0 mg/Kg
1,1-Dichloropropene	ND @ 5.0 mg/Kg
Benzene	ND @ 5.0 mg/Kg
1,2-Dichloroethane	ND @ 5.0 mg/Kg
Trichloroethene	ND @ 5.0 mg/Kg
1,2-Dichloropropane	ND @ 5.0 mg/Kg
Dibromomethane	ND @ 5.0 mg/Kg
Bromodichloromethane	ND @ 5.0 mg/Kg
cis-1,3-Dichloropropene	ND @ 5.0 mg/Kg
4-Methyl-2-pentanone (MIBK)	ND @ 10.0 mg/Kg
Toluene	ND @ 5.0 mg/Kg
trans 1,3-Dichloropropene	ND @ 5.0 mg/Kg
1,1,2-Trichloroethane	ND @ 5.0 mg/Kg
Tetrachloroethene	ND @ 5.0 mg/Kg
1,3-Dichloropropane	ND @ 5.0 mg/Kg
Dibromochloromethane	ND @ 5.0 mg/Kg
2-Hexanone (Methyl butyl ketone)	ND @ 10.0 mg/Kg
1,2-Dibromoethane (EDB)	ND @ 5.0 mg/Kg
Chlorobenzene	ND @ 5.0 mg/Kg
1-Chlorohexane	ND @ 5.0 mg/Kg
Ethyl Benzene	ND @ 5.0 mg/Kg
1,1,1,2-Tetrachloroethane	ND @ 5.0 mg/Kg
1,2-Xylene	ND @ 5.0 mg/Kg
1,3-Xylene & 1,4-Xylene	ND @ 5.0 mg/Kg
Styrene	ND @ 5.0 mg/Kg

TOTAL CONSTITUENTS	CONCENTRATION
Bromoform	ND @ 5.0 mg/Kg
Isopropylbenzene (Cumene)	ND @ 5.0 mg/Kg
Bromobenzene	ND @ 5.0 mg/Kg
1,2,3-Trichloropropane	ND @ 5.0 mg/Kg
1,1,2,2-Tetrachloroethane	ND @ 5.0 mg/Kg
n-Propylbenzene	ND @ 5.0 mg/Kg
2-Chlorotoluene	ND @ 5.0 mg/Kg
3-Chlorotoluene	ND @ 5.0 mg/Kg
4-Chlorotoluene	ND @ 5.0 mg/Kg
1,3,5-Trimethylbenzene	ND @ 5.0 mg/Kg
tert-Butylbenzene	ND @ 5.0 mg/Kg
1,2,4-Trimethyl benzene	ND @ 5.0 mg/Kg
sec-Butylbenzene	ND @ 5.0 mg/Kg
Isopropyl toluene (Cymene)	ND @ 5.0 mg/Kg
n-Butylbenzene	ND @ 5.0 mg/Kg
1,2-Dibromo-3-chloropropane (DBCP)	ND @ 5.0 mg/Kg
Hexachlorobutadiene	ND @ 5.0 mg/Kg
1,2,3-Trichlorobenzene	ND @ 5.0 mg/Kg
Phenol	ND @ 2.31 mg/Kg
Aniline	ND @ 2.31 mg/Kg
Bis-(2-Chloroethyl)ether	ND @ 2.31 mg/Kg
2-Chlorophenol	ND @ 2.31 mg/Kg
1,3-Dichlorobenzene	ND @ 2.31 mg/Kg
1,4-Dichlorobenzene	ND @ 2.31 mg/Kg
Benzyl Alcohol	ND @ 2.31 mg/Kg
1,2-Dichlorobenzene	ND @ 2.31 mg/Kg
2-Methylphenol	ND @ 2.31 mg/Kg
4-Methylphenol	ND @ 2.31 mg/Kg
Bis-(2-Chloroisopropyl)ether	ND @ 2.31 mg/Kg
N-Nitrosodi-n-propylamine	ND @ 2.31 mg/Kg
Hexachloroethane	ND @ 2.31 mg/Kg
Nitrobenzene	ND @ 2.31 mg/Kg
Isophorone	ND @ 2.31 mg/Kg
2-Nitrophenol	ND @ 2.31 mg/Kg
2,4-Dimethylphenol	ND @ 2.31 mg/Kg
Bis-(2-Chloroethoxy)methane	ND @ 2.31 mg/Kg
Benzoic Acid	ND @ 11.2 mg/Kg
2,4-Dichlorophenol	ND @ 2.31 mg/Kg
1,2,4-Trichlorobenzene	ND @ 2.31 mg/Kg
Naphthalene	ND @ 2.31 mg/Kg
4-Chloroaniline	ND @ 2.31 mg/Kg
1,1,2,3,4,4-Hexachloro-1,3-butadiene	ND @ 2.31 mg/Kg
4-Chloro-3-methylphenol	ND @ 2.31 mg/Kg
2-Methylnaphthalene	ND @ 2.31 mg/Kg
1,2,3,4,5,5-Hexachloro-1,3-cyclopentadiene	ND @ 2.31 mg/Kg
2,4,6-Trichlorophenol	ND @ 2.31 mg/Kg
2,4,5-Trichlorophenol	ND @ 2.31 mg/Kg
2-Chloronaphthalene	ND @ 2.31 mg/Kg
2-Nitroaniline	ND @ 11.2 mg/Kg
Dimethyl Phthalate	ND @ 2.31 mg/Kg

TOTAL CONSTITUENTS	CONCENTRATION
Acenaphthylene	ND @ 2.31 mg/Kg
2,6-Dinitrotoluene	ND @ 2.31 mg/Kg
3-Nitroaniline	ND @ 11.2 mg/Kg
Acenaphthene	ND @ 2.31 mg/Kg
2,4-Dinitrophenol	ND @ 11.2 mg/Kg
4-Nitrophenol	ND @ 11.2 mg/Kg
Dibenzofuran	ND @ 2.31 mg/Kg
2,4-Dinitrotoluene	ND @ 2.31 mg/Kg
Diethyl Phthalate	ND @ 2.31 mg/Kg
Fluorene	ND @ 2.31 mg/Kg
4-Chlorophenyl phenyl ether	ND @ 2.31 mg/Kg
4-Nitroaniline	ND @ 11.2 mg/Kg
2-Methyl-4,6-Dinitrophenol	ND @ 11.2 mg/Kg
N-Nitrosodiphenylamine	ND @ 2.31 mg/Kg
Diphenyl Amine	ND @ 2.31 mg/Kg
Azobenzene	ND @ 2.31 mg/Kg
4-Bromophenyl phenyl ether	ND @ 2.31 mg/Kg
Pentachlorophenol	ND @ 11.2 mg/Kg
Phenanthrene	ND @ 2.31 mg/Kg
Anthracene	ND @ 2.31 mg/Kg
Carbazole	ND @ 2.31 mg/Kg
Dibutyl Phthalate	0.64 mg/Kg^{J}
Fluoranthene	ND @ 2.31 mg/Kg
Benzidine	ND @ 11.2 mg/Kg
Pyrene	ND @ 2.31 mg/Kg
Butyl Benzyl Phthalate	ND @ 2.31 mg/Kg
3,3'-Dichlorobenzidine	ND @ 4.62 mg/Kg
Benzo(A)Anthracene	ND @ 2.31 mg/Kg
Chrysene	ND @ 2.31 mg/Kg
Bis(2-Ethylhexyl)Phthalate	ND @ 2.31 mg/Kg
Di-n-octylphthalate	ND @ 2.31 mg/Kg
Benzo(B)Fluoranthene	ND @ 2.31 mg/Kg
Benzo(K)Fluoranthene	ND @ 2.31 mg/Kg
Benzo(A)Pyrene	ND @ 2.31 mg/Kg
Indeno(1,2,3-C,D)Pyrene	ND @ 2.31 mg/Kg
Dibenzo(A,H)Anthracene	ND @ 2.31 mg/Kg
Benzo(G,H,I)Perylene	ND @ 2.31 mg/Kg
Bis (2-Ethylhexyl) Adipate	1.91 mg/Kg^{J}
Butyl 2-Methyl Propyl Phthalate	12.6 mg/Kg^{J,N}
4-Methyl-3-pentene-2-one	7.06 mg/Kg^{J,N}
3-Pentene-2-one	11.1 mg/Kg^{J,N}

ND = Not Detected, B = Analyte Found In Blank, J = Estimated Value
N = Presumptive Identification

This report has been prepared and reviewed by personnel within the Division of Environmental Services. It has been approved for release.

William E. Davis, Director
Division of Environmental Services

PHILLIP J. SHEPHERD
SECRETARY

BRERETON C. JONES
GOVERNOR

COMMONWEALTH OF KENTUCKY
NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
FRANKFORT OFFICE PARK
18 REILLY ROAD
FRANKFORT, KENTUCKY 40601

August 27, 1992

Division of Environmental Services
Report Number: A20-01154
Sample Number: 9202202

TO: Division of Water
Frankfort Office Park
Frankfort, Kentucky 40601

RE: Boone Creek Drainage

ATTN: Michael Mills

County: Fayette & Clark

Facility: DOW#04026006

Collected by: Skip Call **Date:** 04/15/92 **Time:** 0945

Delivered by: Skip Call **Date:** 04/16/92 **Time:** 1100

Received by: Polly Ellis **Date:** 04/16/92 **Time:** 1100

Sample Matrix: Sediment **Collection Method:** Grab

Sample Identification: Baughman Fork at Cleveland Rd.

REPORT OF ANALYSIS

TOTAL CONSTITUENTS	CONCENTRATION
Aluminum	15,100 mg/Kg
Antimony	ND @ 2.10 mg/Kg
Arsenic	ND @ 0.664 mg/Kg
Barium	168 mg/Kg HP
Beryllium	0.996 mg/Kg
Cadmium	0.554 mg/Kg
Calcium	24,300 mg/Kg
Chromium	15.4 mg/Kg
Cobalt	12.5 mg/Kg
Copper	1.66 mg/Kg
Iron	23,500 mg/Kg HP
Lead	27.2 mg/Kg
Manganese	1,500 mg/Kg HP
Molybdenum	2.21 mg/Kg
Nickel	14.8 mg/Kg
Potassium	1,300 mg/Kg
Selenium	ND @ 3.88 mg/Kg
Silver	ND @ 0.664 mg/Kg
Sodium	71.0 mg/Kg
Strontium	62.1 mg/Kg
Thallium	ND @ 6.31 mg/Kg
Tin	ND @ 4.87 mg/Kg
Vanadium	21.8 mg/Kg

TOTAL CONSTITUENTS	CONCENTRATION	
Zinc	55.0 mg/Kg	
Cyanide, total	ND @ 0.474 mg/Kg	MP
Oil and Grease	55.5 mg/Kg	
Total Volatile Solids	7.86 %	MP
Organic Carbon	31,800 mg/Kg	
Ammonia-Nitrogen	45.8 mg/Kg	
Total Kjeldhal Nitrogen	1,430 mg/Kg	MP
Mercury	0.153 mg/Kg	MP
Hexachlorobenzene	ND @ 0.009 mg/Kg	
Hexachlorocyclohexane,alpha isomer	ND @ 0.009 mg/Kg	
Hexachlorocyclohexane,beta isomer	ND @ 0.009 mg/Kg	
Hexachlorocyclohexane,gamma isomer	ND @ 0.009 mg/Kg	
Hexachlorocyclohexane,delta isomer	ND @ 0.009 mg/Kg	
Heptachlor	ND @ 0.009 mg/Kg	
Aldrin	ND @ 0.009 mg/Kg	
Chlorpyrifos	ND @ 0.009 mg/Kg	
Heptachlor Epoxide	ND @ 0.009 mg/Kg	
Oxychlordane	ND @ 0.009 mg/Kg	
trans-Chlordane	ND @ 0.009 mg/Kg	
cis-Chlordane	ND @ 0.009 mg/Kg	
trans-Nonachlor	ND @ 0.009 mg/Kg	
alpha-Chlordene	ND @ 0.009 mg/Kg	
Chlordene	ND @ 0.009 mg/Kg	
gamma-Chlordene	ND @ 0.009 mg/Kg	
cis-Nonachlor	ND @ 0.009 mg/Kg	
O,P'-DDE	ND @ 0.009 mg/Kg	
P,P'-DDE	ND @ 0.009 mg/Kg	
Dieldrin	ND @ 0.009 mg/Kg	
Endrin	ND @ 0.009 mg/Kg	
O,P'-DDD	ND @ 0.009 mg/Kg	
P,P'-DDD	ND @ 0.009 mg/Kg	
O,P'-DDT	ND @ 0.009 mg/Kg	
P,P'-DDT	ND @ 0.009 mg/Kg	
Total DDT	ND @ 0.009 mg/Kg	
Methoxychlor	ND @ 0.009 mg/Kg	
Mirex	ND @ 0.009 mg/Kg	
Endosulfan I	ND @ 0.009 mg/Kg	
Endosulfan II	ND @ 0.009 mg/Kg	
Endosulfan Sulfate	ND @ 0.009 mg/Kg	
Endrin Aldehyde	ND @ 0.009 mg/Kg	
Endrin Ketone	ND @ 0.009 mg/Kg	
Toxaphene	ND @ 0.093 mg/Kg	
Atrazine	ND @ 0.19 mg/Kg	
Alachlor	ND @ 0.046 mg/Kg	
Pentachlorophenol	ND @ 0.009 mg/Kg	
2,3,4,5-Tetrachlorophenol	ND @ 0.009 mg/Kg	
2,3,4,6-Tetrachlorophenol	ND @ 0.009 mg/Kg	
Aroclor 1016	ND @ 0.093 mg/Kg	
Aroclor 1221	ND @ 0.19 mg/Kg	
Aroclor 1232	ND @ 0.19 mg/Kg	

TOTAL CONSTITUENTS	CONCENTRATION
Aroclor 1242	ND @ 0.093 mg/Kg
Aroclor 1248	ND @ 0.093 mg/Kg
Aroclor 1254	ND @ 0.093 mg/Kg
Aroclor 1260	ND @ 0.093 mg/Kg
Aroclor 1262	ND @ 0.093 mg/Kg
Aroclor 1268	ND @ 0.093 mg/Kg
Dichlorodifluoromethane	ND @ 5.0 mg/Kg
Chloromethane	ND @ 5.0 mg/Kg
Vinyl Chloride	ND @ 5.0 mg/Kg
Bromomethane	ND @ 5.0 mg/Kg
Chloroethane	ND @ 5.0 mg/Kg
Trichlorofluoromethane	ND @ 5.0 mg/Kg
1,1-Dichloroethene	ND @ 5.0 mg/Kg
Acetone	11.1 mg/Kg[B]
Carbon Disulfide	ND @ 10.0 mg/Kg
Dichloromethane (Methylene Chloride)	151 mg/Kg[B,J]
trans-1,2-Dichloroethene	ND @ 5.0 mg/Kg
1,1-Dichloroethane	ND @ 5.0 mg/Kg
Vinyl Acetate	ND @ 10.0 mg/Kg
2-Butanone (Methyl Ethyl Ketone)	1.0 mg/Kg[J]
2,2-Dichloropropane	ND @ 5.0 mg/Kg
cis-1,2-Dichloroethene	ND @ 5.0 mg/Kg
Bromochloromethane	ND @ 5.0 mg/Kg
Chloroform	ND @ 5.0 mg/Kg
1,1,1-Trichloroethane	ND @ 5.0 mg/Kg
Carbon Tetrachloride	ND @ 5.0 mg/Kg
1,1-Dichloropropene	ND @ 5.0 mg/Kg
Benzene	ND @ 5.0 mg/Kg
1,2-Dichloroethane	ND @ 5.0 mg/Kg
Trichloroethene	ND @ 5.0 mg/Kg
1,2-Dichloropropane	ND @ 5.0 mg/Kg
Dibromomethane	ND @ 5.0 mg/Kg
Bromodichloromethane	ND @ 5.0 mg/Kg
cis-1,3-Dichloropropene	ND @ 5.0 mg/Kg
4-Methyl-2-pentanone (MIBK)	ND @ 10.0 mg/Kg
Toluene	ND @ 5.0 mg/Kg
trans 1,3-Dichloropropene	ND @ 5.0 mg/Kg
1,1,2-Trichloroethane	ND @ 5.0 mg/Kg
Tetrachloroethene	ND @ 5.0 mg/Kg
1,3-Dichloropropane	ND @ 5.0 mg/Kg
Dibromochloromethane	ND @ 5.0 mg/Kg
2-Hexanone (Methyl butyl ketone)	ND @ 10.0 mg/Kg
1,2-Dibromoethane (EDB)	ND @ 5.0 mg/Kg
Chlorobenzene	ND @ 5.0 mg/Kg
1-Chlorohexane	ND @ 5.0 mg/Kg
Ethyl Benzene	ND @ 5.0 mg/Kg
1,1,1,2-Tetrachloroethane	ND @ 5.0 mg/Kg
1,2-Xylene	ND @ 5.0 mg/Kg
1,3-Xylene & 1,4-Xylene	ND @ 5.0 mg/Kg
Styrene	ND @ 5.0 mg/Kg

TOTAL CONSTITUENTS	CONCENTRATION
Bromoform	ND @ 5.0 mg/Kg
Isopropylbenzene (Cumene)	ND @ 5.0 mg/Kg
Bromobenzene	ND @ 5.0 mg/Kg
1,2,3-Trichloropropane	ND @ 5.0 mg/Kg
1,1,2,2-Tetrachloroethane	ND @ 5.0 mg/Kg
n-Propylbenzene	ND @ 5.0 mg/Kg
2-Chlorotoluene	ND @ 5.0 mg/Kg
3-Chlorotoluene	ND @ 5.0 mg/Kg
4-Chlorotoluene	ND @ 5.0 mg/Kg
1,3,5-Trimethylbenzene	ND @ 5.0 mg/Kg
tert-Butylbenzene	ND @ 5.0 mg/Kg
1,2,4-Trimethyl benzene	ND @ 5.0 mg/Kg
sec-Butylbenzene	ND @ 5.0 mg/Kg
Isopropyl toluene (Cymene)	ND @ 5.0 mg/Kg
n-Butylbenzene	ND @ 5.0 mg/Kg
1,2-Dibromo-3-chloropropane (DBCP)	ND @ 5.0 mg/Kg
Hexachlorobutadiene	ND @ 5.0 mg/Kg
1,2,3-Trichlorobenzene	ND @ 5.0 mg/Kg
Phenol	ND @ 1.95 mg/Kg
Aniline	ND @ 1.95 mg/Kg
Bis-(2-Chloroethyl)ether	ND @ 1.95 mg/Kg
2-Chlorophenol	ND @ 1.95 mg/Kg
1,3-Dichlorobenzene	ND @ 1.95 mg/Kg
1,4-Dichlorobenzene	ND @ 1.95 mg/Kg
Benzyl Alcohol	ND @ 1.95 mg/Kg
1,2-Dichlorobenzene	ND @ 1.95 mg/Kg
2-Methylphenol	ND @ 1.95 mg/Kg
4-Methylphenol	ND @ 1.95 mg/Kg
Bis-(2-Chloroisopropyl)ether	ND @ 1.95 mg/Kg
N-Nitrosodi-n-propylamine	ND @ 1.95 mg/Kg
Hexachloroethane	ND @ 1.95 mg/Kg
Nitrobenzene	ND @ 1.95 mg/Kg
Isophorone	ND @ 1.95 mg/Kg
2-Nitrophenol	ND @ 1.95 mg/Kg
2,4-Dimethylphenol	ND @ 1.95 mg/Kg
Bis-(2-Chloroethoxy)methane	ND @ 1.95 mg/Kg
Benzoic Acid	ND @ 9.46 mg/Kg
2,4-Dichlorophenol	ND @ 1.95 mg/Kg
1,2,4-Trichlorobenzene	ND @ 1.95 mg/Kg
Naphthalene	ND @ 1.95 mg/Kg
4-Chloroaniline	ND @ 1.95 mg/Kg
1,1,2,3,4,4-Hexachloro-1,3-butadiene	ND @ 1.95 mg/Kg
4-Chloro-3-methylphenol	ND @ 1.95 mg/Kg
2-Methylnaphthalene	ND @ 1.95 mg/Kg
1,2,3,4,5,5-Hexachloro-1,3-cyclopentadiene	ND @ 1.95 mg/Kg
2,4,6-Trichlorophenol	ND @ 1.95 mg/Kg
2,4,5-Trichlorophenol	ND @ 1.95 mg/Kg
2-Chloronaphthalene	ND @ 1.95 mg/Kg
2-Nitroaniline	ND @ 9.46 mg/Kg
Dimethyl Phthalate	ND @ 1.95 mg/Kg

TOTAL CONSTITUENTS	CONCENTRATION
Acenaphthylene	ND @ 1.95 mg/Kg
2,6-Dinitrotoluene	ND @ 1.95 mg/Kg
3-Nitroaniline	ND @ 9.46 mg/Kg
Acenaphthene	ND @ 1.95 mg/Kg
2,4-Dinitrophenol	ND @ 9.46 mg/Kg
4-Nitrophenol	ND @ 9.46 mg/Kg
Dibenzofuran	ND @ 1.95 mg/Kg
2,4-Dinitrotoluene	ND @ 1.95 mg/Kg
Diethyl Phthalate	ND @ 1.95 mg/Kg
Fluorene	ND @ 1.95 mg/Kg
4-Chlorophenyl phenyl ether	ND @ 1.95 mg/Kg
4-Nitroaniline	ND @ 9.46 mg/Kg
2-Methyl-4,6-Dinitrophenol	ND @ 9.46 mg/Kg
N-Nitrosodiphenylamine	ND @ 1.95 mg/Kg
Diphenyl Amine	ND @ 1.95 mg/Kg
Azobenzene	ND @ 1.95 mg/Kg
4-Bromophenyl phenyl ether	ND @ 1.95 mg/Kg
Pentachlorophenol	ND @ 9.46 mg/Kg
Phenanthrene	ND @ 1.95 mg/Kg
Anthracene	ND @ 1.95 mg/Kg
Carbazole	ND @ 1.95 mg/Kg
Dibutyl Phthalate	ND @ 1.95 mg/Kg
Fluoranthene	ND @ 1.95 mg/Kg
Benzidine	ND @ 9.46 mg/Kg
Pyrene	ND @ 1.95 mg/Kg
Butyl Benzyl Phthalate	ND @ 1.95 mg/Kg
3,3'-Dichlorobenzidine	ND @ 3.90 mg/Kg
Benzo(A)Anthracene	ND @ 1.95 mg/Kg
Chrysene	ND @ 1.95 mg/Kg
Bis(2-Ethylhexyl)Phthalate	ND @ 1.95 mg/Kg
Di-n-octylphthalate	ND @ 1.95 mg/Kg
Benzo(B)Fluoranthene	ND @ 1.95 mg/Kg
Benzo(K)Fluoranthene	ND @ 1.95 mg/Kg
Benzo(A)Pyrene	ND @ 1.95 mg/Kg
Indeno(1,2,3-C,D)Pyrene	ND @ 1.95 mg/Kg
Dibenzo(A,H)Anthracene	ND @ 1.95 mg/Kg
Benzo(G,H,I)Perylene	ND @ 1.95 mg/Kg
Bis (2-Ethylhexyl) Adipate	2.58 mg/Kg
Butyl 2-Methyl Propyl Phthalate	2.91 mg/Kg^{J,N}
4-Methyl-3-pentene-2-one	7.19 mg/Kg^{J,N}
3-Pentene-2-one	11.4 mg/Kg^{J,N}

ND = Not Detected, B = Analyte Found In Blank, J = Estimated Value
N = Presumptive Identification

This report has been prepared and reviewed by personnel within the Division of Environmental Services. It has been approved for release.

William E. Davis

William E. Davis, Director
Division of Environmental Services

PHILLIP J. SHEPHERD
SECRETARY

BRERETON C. JONES
GOVERNOR

COMMONWEALTH OF KENTUCKY
NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
FRANKFORT OFFICE PARK
18 REILLY ROAD
FRANKFORT, KENTUCKY 40601

August 27, 1992

Division of Environmental Services
Report Number: A20-01155
Sample Number: 9202203

TO: Division of Water
Frankfort Office Park
Frankfort, Kentucky 40601

RE: Boone Creek Drainage

ATTN: Michael Mills

County: Fayette & Clark

Facility: DOW#04026007

Collected by: Skip Call **Date:** 04/15/92 **Time:** 0850

Delivered by: Skip Call **Date:** 04/16/92 **Time:** 1100

Received by: Polly Ellis **Date:** 04/16/92 **Time:** 1100

Sample Matrix: Sediment **Collection Method:** Grab

Sample Identification: UT Baughman Fork below Blue Sky WWTP

REPORT OF ANALYSIS

TOTAL CONSTITUENTS	CONCENTRATION
Aluminum	19,600 mg/Kg
Antimony	ND @ 2.77 mg/Kg
Arsenic	ND @ 0.875 mg/Kg
Barium	230 mg/Kg
Beryllium	1.17 mg/Kg
Cadmium	0.584 mg/Kg
Calcium	56,800 mg/Kg
Chromium	22.9 mg/Kg
Cobalt	11.5 mg/Kg
Copper	9.34 mg/Kg
Iron	27,500 mg/Kg
Lead	34.6 mg/Kg
Manganese	2,240 mg/Kg
Molybdenum	ND @ 1.31 mg/Kg
Nickel	23.2 mg/Kg
Potassium	2,120 mg/Kg
Selenium	ND @ 5.11 mg/Kg
Silver	ND @ 0.875 mg/Kg
Sodium	91.4 mg/Kg
Strontium	128 mg/Kg
Thallium	ND @ 8.32 mg/Kg
Tin	ND @ 6.42 mg/Kg
Vanadium	25.8 mg/Kg

TOTAL CONSTITUENTS	CONCENTRATION
Zinc	96.7 mg/Kg
Cyanide, total	ND @ 0.487 mg/Kg
Oil and Grease	2,690 mg/Kg
Total Volatile Solids	8.57 %
Organic Carbon	21,700 mg/Kg
Ammonia-Nitrogen	198 mg/Kg
Total Kjeldhal Nitrogen	1,960 mg/Kg
Mercury	0.126 mg/Kg
Hexachlorobenzene	ND @ 0.012 mg/Kg
Hexachlorocyclohexane,alpha isomer	ND @ 0.012 mg/Kg
Hexachlorocyclohexane,beta isomer	ND @ 0.012 mg/Kg
Hexachlorocyclohexane,gamma isomer	ND @ 0.012 mg/Kg
Hexachlorocyclohexane,delta isomer	ND @ 0.012 mg/Kg
Heptachlor	ND @ 0.012 mg/Kg
Aldrin	ND @ 0.012 mg/Kg
Chlorpyrifos	ND @ 0.012 mg/Kg
Heptachlor Epoxide	ND @ 0.012 mg/Kg
Oxychlordane	ND @ 0.012 mg/Kg
trans-Chlordane	ND @ 0.012 mg/Kg
cis-Chlordane	ND @ 0.012 mg/Kg
trans-Nonachlor	ND @ 0.012 mg/Kg
alpha-Chlordene	ND @ 0.012 mg/Kg
Chlordene	ND @ 0.012 mg/Kg
gamma-Chlordene	ND @ 0.012 mg/Kg
cis-Nonachlor	ND @ 0.012 mg/Kg
O,P'-DDE	0.013 mg/Kg
P,P'-DDE	ND @ 0.012 mg/Kg
Dieldrin	0.024 mg/Kg
Endrin	ND @ 0.012 mg/Kg
O,P'-DDD	ND @ 0.012 mg/Kg
P,P'-DDD	ND @ 0.012 mg/Kg
O,P'-DDT	ND @ 0.012 mg/Kg
P,P'-DDT	ND @ 0.012 mg/Kg
Total DDT	0.013 mg/Kg
Methoxychlor	ND @ 0.012 mg/Kg
Mirex	ND @ 0.012 mg/Kg
Endosulfan I	ND @ 0.012 mg/Kg
Endosulfan II	ND @ 0.012 mg/Kg
Endosulfan Sulfate	ND @ 0.012 mg/Kg
Endrin Aldehyde	ND @ 0.012 mg/Kg
Endrin Ketone	ND @ 0.012 mg/Kg
Toxaphene	ND @ 012 mg/Kg
Atrazine	ND @ 0.24 mg/Kg
Alachlor	ND @ 0.06 mg/Kg
Pentachlorophenol	ND @ 0.012 mg/Kg
2,3,4,5-Tetrachlorophenol	ND @ 0.012 mg/Kg
2,3,4,6-Tetrachlorophenol	ND @ 0.012 mg/Kg
Aroclor 1016	ND @ 0.12 mg/Kg
Aroclor 1221	ND @ 0.24 mg/Kg
Aroclor 1232	ND @ 0.24 mg/Kg

TOTAL CONSTITUENTS	CONCENTRATION
Aroclor 1242	ND @ 0.12 mg/Kg
Aroclor 1248	ND @ 0.12 mg/Kg
Aroclor 1254	ND @ 0.12 mg/Kg
Aroclor 1260	ND @ 0.12 mg/Kg
Aroclor 1262	ND @ 0.12 mg/Kg
Aroclor 1268	ND @ 0.12 mg/Kg
Dichlorodifluoromethane	ND @ 5.0 mg/Kg
Chloromethane	ND @ 5.0 mg/Kg
Vinyl Chloride	ND @ 5.0 mg/Kg
Bromomethane	ND @ 5.0 mg/Kg
Chloroethane	ND @ 5.0 mg/Kg
Trichlorofluoromethane	ND @ 5.0 mg/Kg
1,1-Dichloroethene	ND @ 5.0 mg/Kg
Acetone	18.5 mg/Kg[B]
Carbon Disulfide	ND @ 10.0 mg/Kg
Dichloromethane (Methylene Chloride)	138 mg/Kg[B,J]
trans-1,2-Dichloroethene	ND @ 5.0 mg/Kg
1,1-Dichloroethane	ND @ 5.0 mg/Kg
Vinyl Acetate	ND @ 5.0 mg/Kg
2-Butanone (Methyl Ethyl Ketone)	ND @ 10.0 mg/Kg
2,2-Dichloropropane	ND @ 5.0 mg/Kg
cis-1,2-Dichloroethene	ND @ 5.0 mg/Kg
Bromochloromethane	ND @ 5.0 mg/Kg
Chloroform	ND @ 5.0 mg/Kg
1,1,1-Trichloroethane	ND @ 5.0 mg/Kg
Carbon Tetrachloride	ND @ 5.0 mg/Kg
1,1-Dichloropropene	ND @ 5.0 mg/Kg
Benzene	ND @ 5.0 mg/Kg
1,2-Dichloroethane	ND @ 5.0 mg/Kg
Trichloroethene	ND @ 5.0 mg/Kg
1,2-Dichloropropane	ND @ 5.0 mg/Kg
Dibromomethane	ND @ 5.0 mg/Kg
Bromodichloromethane	ND @ 5.0 mg/Kg
cis-1,3-Dichloropropene	ND @ 5.0 mg/Kg
4-Methyl-2-pentanone (MIBK)	ND @ 10.0 mg/Kg
Toluene	ND @ 5.0 mg/Kg
trans 1,3-Dichloropropene	ND @ 5.0 mg/Kg
1,1,2-Trichloroethane	ND @ 5.0 mg/Kg
Tetrachloroethene	ND @ 5.0 mg/Kg
1,3-Dichloropropane	ND @ 5.0 mg/Kg
Dibromochloromethane	ND @ 5.0 mg/Kg
2-Hexanone (Methyl butyl ketone)	ND @ 10.0 mg/Kg
1,2-Dibromoethane (EDB)	ND @ 5.0 mg/Kg
Chlorobenzene	ND @ 5.0 mg/Kg
1-Chlorohexane	ND @ 5.0 mg/Kg
Ethyl Benzene	ND @ 5.0 mg/Kg
1,1,1,2-Tetrachloroethane	ND @ 5.0 mg/Kg
1,2-Xylene	ND @ 5.0 mg/Kg
1,3-Xylene & 1,4-Xylene	ND @ 5.0 mg/Kg
Styrene	ND @ 5.0 mg/Kg

TOTAL CONSTITUENTS	CONCENTRATION
Bromoform	ND @ 5.0 mg/Kg
Isopropylbenzene (Cumene)	ND @ 5.0 mg/Kg
Bromobenzene	ND @ 5.0 mg/Kg
1,2,3-Trichloropropane	ND @ 5.0 mg/Kg
1,1,2,2-Tetrachloroethane	ND @ 5.0 mg/Kg
n-Propylbenzene	ND @ 5.0 mg/Kg
2-Chlorotoluene	ND @ 5.0 mg/Kg
3-Chlorotoluene	ND @ 5.0 mg/Kg
4-Chlorotoluene	ND @ 5.0 mg/Kg
1,3,5-Trimethylbenzene	ND @ 5.0 mg/Kg
tert-Butylbenzene	ND @ 5.0 mg/Kg
1,2,4-Trimethyl benzene	ND @ 5.0 mg/Kg
sec-Butylbenzene	ND @ 5.0 mg/Kg
Isopropyl toluene (Cymene)	ND @ 5.0 mg/Kg
n-Butylbenzene	ND @ 5.0 mg/Kg
1,2-Dibromo-3-chloropropane (DBCP)	ND @ 5.0 mg/Kg
Hexachlorobutadiene	ND @ 5.0 mg/Kg
1,2,3-Trichlorobenzene	ND @ 5.0 mg/Kg
Phenol	ND @ 2.72 mg/Kg
Aniline	ND @ 2.72 mg/Kg
Bis-(2-Chloroethyl)ether	ND @ 2.72 mg/Kg
2-Chlorophenol	ND @ 2.72 mg/Kg
1,3-Dichlorobenzene	ND @ 2.72 mg/Kg
1,4-Dichlorobenzene	ND @ 2.72 mg/Kg
Benzyl Alcohol	ND @ 2.72 mg/Kg
1,2-Dichlorobenzene	ND @ 2.72 mg/Kg
2-Methylphenol	ND @ 2.72 mg/Kg
4-Methylphenol	18.6 mg/Kg
Bis-(2-Chloroisopropyl)ether	ND @ 2.72 mg/Kg
N-Nitrosodi-n-propylamine	ND @ 2.72 mg/Kg
Hexachloroethane	ND @ 2.72 mg/Kg
Nitrobenzene	ND @ 2.72 mg/Kg
Isophorone	ND @ 2.72 mg/Kg
2-Nitrophenol	ND @ 2.72 mg/Kg
2,4-Dimethylphenol	ND @ 2.72 mg/Kg
Bis-(2-Chloroethoxy)methane	ND @ 2.72 mg/Kg
Benzoic Acid	ND @ 13.2 mg/Kg
2,4-Dichlorophenol	ND @ 2.72 mg/Kg
1,2,4-Trichlorobenzene	ND @ 2.72 mg/Kg
Naphthalene	ND @ 2.72 mg/Kg
4-Chloroaniline	ND @ 2.72 mg/Kg
1,1,2,3,4,4-Hexachloro-1,3-butadiene	ND @ 2.72 mg/Kg
4-Chloro-3-methylphenol	ND @ 2.72 mg/Kg
2-Methylnaphthalene	ND @ 2.72 mg/Kg
1,2,3,4,5,5-Hexachloro-1,3-cyclopentadiene	ND @ 2.72 mg/Kg
2,4,6-Trichlorophenol	ND @ 2.72 mg/Kg
2,4,5-Trichlorophenol	ND @ 2.72 mg/Kg
2-Chloronaphthalene	ND @ 2.72 mg/Kg
2-Nitroaniline	ND @ 13.2 mg/Kg
Dimethyl Phthalate	ND @ 2.72 mg/Kg

TOTAL CONSTITUENTS	CONCENTRATION
Acenaphthylene	ND @ 2.72 mg/Kg
2,6-Dinitrotoluene	ND @ 2.72 mg/Kg
3-Nitroaniline	ND @ 13.2 mg/Kg
Acenaphthene	ND @ 2.72 mg/Kg
2,4-Dinitrophenol	ND @ 13.2 mg/Kg
4-Nitrophenol	ND @ 13.2 mg/Kg
Dibenzofuran	ND @ 2.72 mg/Kg
2,4-Dinitrotoluene	ND @ 2.72 mg/Kg
Diethyl Phthalate	ND @ 2.72 mg/Kg
Fluorene	ND @ 2.72 mg/Kg
4-Chlorophenyl phenyl ether	ND @ 2.72 mg/Kg
4-Nitroaniline	ND @ 13.2 mg/Kg
2-Methyl-4,6-Dinitrophenol	ND @ 13.2 mg/Kg
N-Nitrosodiphenylamine	ND @ 2.72 mg/Kg
Diphenyl Amine	ND @ 2.72 mg/Kg
Azobenzene	ND @ 2.72 mg/Kg
4-Bromophenyl phenyl ether	ND @ 2.72 mg/Kg
Pentachlorophenol	ND @ 13.2 mg/Kg
Phenanthrene	ND @ 2.72 mg/Kg
Anthracene	ND @ 2.72 mg/Kg
Carbazole	ND @ 2.72 mg/Kg
Dibutyl Phthalate	ND @ 2.72 mg/Kg
Fluoranthene	ND @ 2.72 mg/Kg
Benzidine	ND @ 13.2 mg/Kg
Pyrene	ND @ 2.72 mg/Kg
Butyl Benzyl Phthalate	ND @ 2.72 mg/Kg
3,3'-Dichlorobenzidine	ND @ 5.44 mg/Kg
Benzo(A)Anthracene	ND @ 2.72 mg/Kg
Chrysene	ND @ 2.72 mg/Kg
Bis(2-Ethylhexyl)Phthalate	1.16 mg/Kg^{J}
Di-n-octylphthalate	ND @ 2.72 mg/Kg
Benzo(B)Fluoranthene	ND @ 2.72 mg/Kg
Benzo(K)Fluoranthene	ND @ 2.72 mg/Kg
Benzo(A)Pyrene	ND @ 2.72 mg/Kg
Indeno(1,2,3-C,D)Pyrene	ND @ 2.72 mg/Kg
Dibenzo(A,H)Anthracene	ND @ 2.72 mg/Kg
Benzo(G,H,I)Perylene	ND @ 2.72 mg/Kg
Benzene Acetic Acid	12.1 mg/Kg^{J,N}
2,4-Dimethyl-2-pentene	12.0 mg/Kg^{J,N}
3-Pentene-2-one	32.7 mg/Kg^{J,N}

ND = Not Detected, B = Analyte Found In Blank, J = Estimated Value
N = Presumptive Identification

This report has been prepared and reviewed by personnel within the Division of Environmental Services. It has been approved for release.

William E. Davis

William E. Davis, Director
Division of Environmental Services

PHILLIP J. SHEPHERD
SECRETARY

BRERETON C. JONES
GOVERNOR

COMMONWEALTH OF KENTUCKY
NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
FRANKFORT OFFICE PARK
18 REILLY ROAD
FRANKFORT, KENTUCKY 40601

August 27, 1992

Division of Environmental Services
Report Number: A20-01156
Sample Number: 9202204

TO: Division of Water
Frankfort Office Park
Frankfort, Kentucky 40601

RE: Boone Creek Drainage

ATTN: Michael Mills

County: Fayette & Clark

Facility: DOW#04026008

Collected by: Skip Call **Date:** 04/15/92 **Time:** 0915

Delivered by: Skip Call **Date:** 04/16/92 **Time:** 1100

Received by: Polly Ellis **Date:** 04/16/92 **Time:** 1100

Sample Matrix: Sediment **Collection Method:** Grab

Sample Identification: UT Baughman Fork above Blue Sky WWTP

REPORT OF ANALYSIS

TOTAL CONSTITUENTS	CONCENTRATION
Aluminum	16,100 mg/Kg
Antimony	ND @ 2.08 mg/Kg
Arsenic	ND @ 0.657 mg/Kg
Barium	198 mg/Kg
Beryllium	1.42 mg/Kg
Cadmium	ND @ 0.329 mg/Kg
Calcium	45,200 mg/Kg
Chromium	21.6 mg/Kg
Cobalt	13.3 mg/Kg
Copper	7.78 mg/Kg
Iron	37,500 mg/Kg
Lead	41.9 mg/Kg
Magnesium	3,610 mg/Kg
Manganese	2,200 mg/Kg
Molybdenum	ND @ 0.985 mg/Kg
Nickel	25.8 mg/Kg
Potassium	1,480 mg/Kg
Selenium	ND @ 3.83 mg/Kg
Silver	ND @ 0.657 mg/Kg
Sodium	83.7 mg/Kg
Strontium	105 mg/Kg
Thallium	ND @ 6.24 mg/Kg
Tin	ND @ 4.82 mg/Kg

TOTAL CONSTITUENTS	CONCENTRATION
Vanadium	26.8 mg/Kg
Zinc	89.7 mg/Kg
Cyanide, total	ND @ 0.523 mg/Kg
Oil and Grease	612 mg/Kg
Total Volatile Solids	7.37 %
Organic Carbon	26,500 mg/Kg
Ammonia-Nitrogen	105 mg/Kg
Total Kjeldhal Nitrogen	1,750 mg/Kg
Mercury	0.122 mg/Kg
Hexachlorobenzene	ND @ 0.005 mg/Kg
Hexachlorocyclohexane,alpha isomer	ND @ 0.005 mg/Kg
Hexachlorocyclohexane,beta isomer	ND @ 0.005 mg/Kg
Hexachlorocyclohexane,gamma isomer	ND @ 0.005 mg/Kg
Hexachlorocyclohexane,delta isomer	ND @ 0.005 mg/Kg
Heptachlor	ND @ 0.005 mg/Kg
Aldrin	ND @ 0.005 mg/Kg
Chlorpyrifos	ND @ 0.005 mg/Kg
Heptachlor Epoxide	ND @ 0.005 mg/Kg
Oxychlordane	ND @ 0.005 mg/Kg
trans-Chlordane	ND @ 0.005 mg/Kg
cis-Chlordane	ND @ 0.005 mg/Kg
trans-Nonachlor	ND @ 0.005 mg/Kg
alpha-Chlordene	ND @ 0.005 mg/Kg
Chlordene	ND @ 0.005 mg/Kg
gamma-Chlordene	ND @ 0.005 mg/Kg
cis-Nonachlor	ND @ 0.005 mg/Kg
O,P'-DDE	ND @ 0.005 mg/Kg
P,P'-DDE	ND @ 0.005 mg/Kg
Dieldrin	ND @ 0.005 mg/Kg
Endrin	ND @ 0.005 mg/Kg
O,P'-DDD	ND @ 0.005 mg/Kg
P,P'-DDD	ND @ 0.005 mg/Kg
O,P'-DDT	ND @ 0.005 mg/Kg
P,P'-DDT	ND @ 0.005 mg/Kg
Total DDT	ND @ 0.005 mg/Kg
Methoxychlor	ND @ 0.005 mg/Kg
Mirex	ND @ 0.005 mg/Kg
Endosulfan I	ND @ 0.005 mg/Kg
Endosulfan II	ND @ 0.005 mg/Kg
Endosulfan Sulfate	ND @ 0.005 mg/Kg
Endrin Aldehyde	ND @ 0.005 mg/Kg
Endrin Ketone	ND @ 0.005 mg/Kg
Toxaphene	ND @ 0.052 mg/Kg
Atrazine	ND @ 0.10 mg/Kg
Alachlor	ND @ 0.026 mg/Kg
Pentachlorophenol	ND @ 0.005 mg/Kg
2,3,4,5-Tetrachlorophenol	ND @ 0.005 mg/Kg
2,3,4,6-Tetrachlorophenol	ND @ 0.005 mg/Kg
Aroclor 1016	ND @ 0.052 mg/Kg
Aroclor 1221	ND @ 0.10 mg/Kg

TOTAL CONSTITUENTS	CONCENTRATION
Aroclor 1232	ND @ 0.10 mg/Kg
Aroclor 1242	ND @ 0.052 mg/Kg
Aroclor 1248	ND @ 0.052 mg/Kg
Aroclor 1254	ND @ 0.052 mg/Kg
Aroclor 1260	ND @ 0.052 mg/Kg
Aroclor 1262	ND @ 0.052 mg/Kg
Aroclor 1268	ND @ 0.052 mg/Kg
Dichlorodifluoromethane	ND @ 5.0 mg/Kg
Chloromethane	ND @ 5.0 mg/Kg
Vinyl Chloride	ND @ 5.0 mg/Kg
Bromomethane	ND @ 5.0 mg/Kg
Chloroethane	ND @ 5.0 mg/Kg
Trichlorofluoromethane	ND @ 5.0 mg/Kg
1,1-Dichloroethene	ND @ 5.0 mg/Kg
Acetone	9.0 mg/Kg[B,J]
Carbon Disulfide	ND @ 10.0 mg/Kg
Dichloromethane (Methylene Chloride)	130 mg/Kg[B,J]
trans-1,2-Dichloroethene	ND @ 5.0 mg/Kg
1,1-Dichloroethane	ND @ 5.0 mg/Kg
Vinyl Acetate	ND @ 10.0 mg/Kg
2-Butanone (Methyl Ethyl Ketone)	ND @ 10.0 mg/Kg
2,2-Dichloropropane	ND @ 5.0 mg/Kg
cis-1,2-Dichloroethene	ND @ 5.0 mg/Kg
Bromochloromethane	ND @ 5.0 mg/Kg
Chloroform	ND @ 5.0 mg/Kg
1,1,1-Trichloroethane	ND @ 5.0 mg/Kg
Carbon Tetrachloride	ND @ 5.0 mg/Kg
1,1-Dichloropropene	ND @ 5.0 mg/Kg
Benzene	ND @ 5.0 mg/Kg
1,2-Dichloroethane	ND @ 5.0 mg/Kg
Trichloroethene	ND @ 5.0 mg/Kg
1,2-Dichloropropane	ND @ 5.0 mg/Kg
Dibromomethane	ND @ 5.0 mg/Kg
Bromodichloromethane	ND @ 5.0 mg/Kg
cis-1,3-Dichloropropene	ND @ 5.0 mg/Kg
4-Methyl-2-pentanone (MIBK)	ND @ 10.0 mg/Kg
Toluene	ND @ 5.0 mg/Kg
trans 1,3-Dichloropropene	ND @ 5.0 mg/Kg
1,1,2-Trichloroethane	ND @ 5.0 mg/Kg
Tetrachloroethene	ND @ 5.0 mg/Kg
1,3-Dichloropropane	ND @ 5.0 mg/Kg
Dibromochloromethane	ND @ 5.0 mg/Kg
2-Hexanone (Methyl butyl ketone)	ND @ 10.0 mg/Kg
1,2-Dibromoethane (EDB)	ND @ 5.0 mg/Kg
Chlorobenzene	ND @ 5.0 mg/Kg
1-Chlorohexane	ND @ 5.0 mg/Kg
Ethyl Benzene	ND @ 5.0 mg/Kg
1,1,1,2-Tetrachloroethane	ND @ 5.0 mg/Kg
1,2-Xylene	ND @ 5.0 mg/Kg
1,3-Xylene & 1,4-Xylene	ND @ 5.0 mg/Kg

TOTAL CONSTITUENTS	CONCENTRATION
Styrene	ND @ 5.0 mg/Kg
Bromoform	ND @ 5.0 mg/Kg
Isopropylbenzene (Cumene)	ND @ 5.0 mg/Kg
Bromobenzene	ND @ 5.0 mg/Kg
1,2,3-Trichloropropane	ND @ 5.0 mg/Kg
1,1,2,2-Tetrachloroethane	ND @ 5.0 mg/Kg
n-Propylbenzene	ND @ 5.0 mg/Kg
2-Chlorotoluene	ND @ 5.0 mg/Kg
3-Chlorotoluene	ND @ 5.0 mg/Kg
4-Chlorotoluene	ND @ 5.0 mg/Kg
1,3,5-Trimethylbenzene	ND @ 5.0 mg/Kg
tert-Butylbenzene	ND @ 5.0 mg/Kg
1,2,4-Trimethyl benzene	ND @ 5.0 mg/Kg
sec-Butylbenzene	ND @ 5.0 mg/Kg
Isopropyl toluene (Cymene)	ND @ 5.0 mg/Kg
n-Butylbenzene	ND @ 5.0 mg/Kg
1,2-Dibromo-3-chloropropane (DBCP)	ND @ 5.0 mg/Kg
Hexachlorobutadiene	ND @ 5.0 mg/Kg
1,2,3-Trichlorobenzene	ND @ 5.0 mg/Kg
Phenol	ND @ 2.15 mg/Kg
Aniline	ND @ 2.15 mg/Kg
Bis-(2-Chloroethyl)ether	ND @ 2.15 mg/Kg
2-Chlorophenol	ND @ 2.15 mg/Kg
1,3-Dichlorobenzene	ND @ 2.15 mg/Kg
1,4-Dichlorobenzene	ND @ 2.15 mg/Kg
Benzyl Alcohol	ND @ 2.15 mg/Kg
1,2-Dichlorobenzene	ND @ 2.15 mg/Kg
2-Methylphenol	ND @ 2.15 mg/Kg
4-Methylphenol	ND @ 2.15 mg/Kg
Bis-(2-Chloroisopropyl)ether	ND @ 2.15 mg/Kg
N-Nitrosodi-n-propylamine	ND @ 2.15 mg/Kg
Hexachloroethane	ND @ 2.15 mg/Kg
Nitrobenzene	ND @ 2.15 mg/Kg
Isophorone	ND @ 2.15 mg/Kg
2-Nitrophenol	ND @ 2.15 mg/Kg
2,4-Dimethylphenol	ND @ 2.15 mg/Kg
Bis-(2-Chloroethoxy)methane	ND @ 2.15 mg/Kg
Benzoic Acid	ND @ 10.4 mg/Kg
2,4-Dichlorophenol	ND @ 2.15 mg/Kg
1,2,4-Trichlorobenzene	ND @ 2.15 mg/Kg
Naphthalene	ND @ 2.15 mg/Kg
4-Chloroaniline	ND @ 2.15 mg/Kg
1,1,2,3,4,4-Hexachloro-1,3-butadiene	ND @ 2.15 mg/Kg
4-Chloro-3-methylphenol	ND @ 2.15 mg/Kg
2-Methylnaphthalene	ND @ 2.15 mg/Kg
1,2,3,4,5,5-Hexachloro-1,3-cyclopentadiene	ND @ 2.15 mg/Kg
2,4,6-Trichlorophenol	ND @ 2.15 mg/Kg
2,4,5-Trichlorophenol	ND @ 2.15 mg/Kg
2-Chloronaphthalene	ND @ 2.15 mg/Kg
2-Nitroaniline	ND @ 10.4 mg/Kg

TOTAL CONSTITUENTS	CONCENTRATION
Dimethyl Phthalate	ND @ 2.15 mg/Kg
Acenaphthylene	ND @ 2.15 mg/Kg
2,6-Dinitrotoluene	ND @ 2.15 mg/Kg
3-Nitroaniline	ND @ 10.4 mg/Kg
Acenaphthene	ND @ 2.15 mg/Kg
2,4-Dinitrophenol	ND @ 10.4 mg/Kg
4-Nitrophenol	ND @ 10.4 mg/Kg
Dibenzofuran	ND @ 2.15 mg/Kg
2,4-Dinitrotoluene	ND @ 2.15 mg/Kg
Diethyl Phthalate	ND @ 2.15 mg/Kg
Fluorene	ND @ 2.15 mg/Kg
4-Chlorophenyl phenyl ether	ND @ 2.15 mg/Kg
4-Nitroaniline	ND @ 10.4 mg/Kg
2-Methyl-4,6-Dinitrophenol	ND @ 10.4 mg/Kg
N-Nitrosodiphenylamine	ND @ 2.15 mg/Kg
Diphenyl Amine	ND @ 2.15 mg/Kg
Azobenzene	ND @ 2.15 mg/Kg
4-Bromophenyl phenyl ether	ND @ 2.15 mg/Kg
Pentachlorophenol	ND @ 10.4 mg/Kg
Phenanthrene	ND @ 2.15 mg/Kg
Anthracene	ND @ 2.15 mg/Kg
Carbazole	ND @ 2.15 mg/Kg
Dibutyl Phthalate	ND @ 2.15 mg/Kg
Fluoranthene	ND @ 2.15 mg/Kg
Benzidine	ND @ 10.4 mg/Kg
Pyrene	ND @ 2.15 mg/Kg
Butyl Benzyl Phthalate	ND @ 2.15 mg/Kg
3,3'-Dichlorobenzidine	ND @ 4.30 mg/Kg
Benzo(A)Anthracene	ND @ 2.15 mg/Kg
Chrysene	ND @ 2.15 mg/Kg
Bis(2-Ethylhexyl)Phthalate	1.56 mg/Kg[J]
Di-n-octylphthalate	ND @ 2.15 mg/Kg
Benzo(B)Fluoranthene	ND @ 2.15 mg/Kg
Benzo(K)Fluoranthene	ND @ 2.15 mg/Kg
Benzo(A)Pyrene	ND @ 2.15 mg/Kg
Indeno(1,2,3-C,D)Pyrene	ND @ 2.15 mg/Kg
Dibenzo(A,H)Anthracene	ND @ 2.15 mg/Kg
Benzo(G,H,I)Perylene	ND @ 2.15 mg/Kg
4-Methyl-3-pentene-2-one	6.67 mg/Kg[J,N]
3-Pentene-2-one	12.5 mg/Kg[J,N]

ND = Not Detected, B = Analyte Found In Blank, J = Estimated Value
N = Presumptive Identification

This report has been prepared and reviewed by personnel within the Division of Environmental Services. It has been approved for release.

William E. Davis

William E. Davis, Director
Division of Environmental Services

APPENDIX D

Boone Creek Algal Data

Appendix : Boone Creek drainage algal data, 1992

Boone Creek Drainage Algal Synoptic List (Exclusive of Diatoms) , 1992								
Division	**Species**	**Station**						
		26-1	**26-2**	**26-3**	**26-4**	**26-5**	**26-6**	**26-7**	**26-8**
Rhodophyta									
	Lemanea sp.	c	c	c	c	c	c[1]		
	Batrachospermum sp.			c	c	c	c[1]		
	Audouinella sp.				r				
Chlorophyta									
	Cladophora glomerata	a	d	c	a	d	c	d	a
	Chlamydomonas sp.							c	
	Closterium acerosum			r					
	C. lanceolatum		r			r			
	C. moniliferum	r	r					r	
	Oedogonium sp.	c						r	
	Pandorina sp.							r	
	Pediastrum Boryanum			r					
	Rhizoclonium sp.	c[2]							
	Spirogyra sp.	c	c	c	c	c		c	a
	Stigeoclonium sp.					c			
	Tetraspora gelatinosa	c		c	c	c		c	
Cyanophyta									
	Lyngbya Taylori	a[2]							
	Merismopedia glauca							c	
	Microcoleus sociatus			c					
	Oscillatoria Agardhii	c		c				c	
	O. limosa							c	
	O. sp.						r		
Euglenophyta									
	Ascoglena vaginicola							c	
	Euglena sp.							c	
Chrysophyta									
	Vaucheria sp.	c						c	c
	diatoms	c	c	c	c	c	c	c	c
Total (non diatom taxa)		10	5	11	6	8	4[1]	13	4
Total (diatom taxa)		51	47	49	61	56	22	38	31
Total Algal Taxa		**61**	**52**	**60**	**67**	**64**	**26[1]**	**51**	**35**

d = dominant, a = abundant, c = common, r = rare

[1] All Rhodophyta observed were dead filaments

[2]Originated in natural seep to Boone Creek

Appendix : Boone Creek drainage algal data, 1992

Boone Creek Drainage Diatom Species List and Diatom Bioassessment Metrics, 1992								
Species	**Stations**							
	26-1	**26-2**	**26-3**	**26-4**	**26-5**	**26-6**	**26-7**	**26-8**
Achnanthes deflexa	2	*	*					
Achnanthes lanceolata	14	13	7	26	3	7	3	2
Achnanthes lanceolata var. dubia	*			9	*		4	*
Achnanthes linearis				1				
Achnanthes linearis var. pusilla	84	20	16		4	2		
Achnanthes hungarica				*				
Achnanthes minutissima	60	5	5	31	3	2	13	1
Achnanthes pinnata	*	*		1		1		
Amphipleura pellucida				4				
Amphora perpusilla	17	13	1		1		40	3
Caloneis bacillum	1		*	1	*			
Caloneis branderi					*			
Calonies hyalina							6	3
Cocconeis pediculus	26	150	80	2	60	*		9
Cocconeis placentula var. euglypta	22	69	23	27	10	2	1	4
Cocconeis placentula var. lineata	*	1	2					
Cyclotella atomus				*	2			
Cyclotella meneghiniana				1	13		*	
Cymatopleura solea	*	1		*				
Cymbella prostrata	*			1				
Cymbella silesiaca			1					
Cymbella sinuata	12	5		*				
Diatoma vulgare	3	*	1	9	6			*
Eunotia curvata		*						
Fragilaria pinnata					2			
Fragilaria vaucheriae	3	3	1	4				
Frustulia vulgaris		*						
Gomphonema angustatum	*	92	109	25	41	14		77
Gomphonema olivaceum	2	1	1		4		1	8
Gomphonema parvulum		2		3	*	4	40	*
Gomphonema pumilum	23	9	15	26	18			6
Gomphonema sp.	*							
Gyrosigma spencerii					*			
Hantzschia amphioxys		1						
Melosira varians	*	1	3	12	1			*
Meridian circulare			*		*			

* Identified in sample but not encountered in 500 valve count
Only 200 individuals counted from station 26-6 because of extremely low biomass
**Not used to calculate Diatom Bioassessment Index

Appendix : Boone Creek drainage algal data, 1992

	26-1	26-2	26-3	26-4	26-5	26-6	26-7	26-8
Navicula accomoda				1	1		2	
Navicula agrestis					2			
Navicula contenta var. biceps								*
Navicula cryptocephala	2	1	4	3	10	*	2	
Navicula cryptocephala var. exilis		5		*				
Navicula cryptocephala var. veneta			1		11		2	4
Navicula gottlandica			1	1			*	
Navicula hustedtii				*				
Navicula lanceolata	2	6	7	10	19	2	3	
Navicula menisculus	6	*						
Navicula menisculus var. upsaliensis	23	8	23	16	4	2	7	22
Navicula minima	30	3	20	78	32	116	133	4
Navicula notha		*			*			
Navicula paucivisitata		*	1				13	
Navicula pelliculosa	6	*	2	1	2	1		
Navicula pupula				1				
Navicula radiosa var. parva				*				
Navicula radiosa var. tenella	4	3	2	14	13		18	26
Navicula rhynchocephala					1			
Navicula salinarum var. intermedia	35	45	62	44	19	1		
Navicula secreta var. apiculata	1	1	1	*	18		5	15
Navicula seminulum				5				
Navicula seminulum var. hustedtii							*	
Navicula sp.	2				*			
Navicula spp.		2						
Navicula subminuscula	20	7	12	37	14	41	39	4
Navicula tripunctata	4	6	7	1	7		25	36
Navicula viridula var. avenacea							*	7
Navicula viridula var. rostellata	*	5	2	1	1			
Neidium binode	*							
Neidium sp.					*			
Nitzschia acicularis	1		2	4	27	1	14	1
Nitzschia amphibia			1				2	
Nitzschia angustata var. acuta	*		*	9	3	1		
Nitzschia chasei							*	
Nitzschia communis							1	1
Nitzschia constricta					1			
Nitzschia dissipata	29	3	7	35	11	*	1	26
Nitzschia debilis	*						*	
Nitzschia dubia					*			

* Identified in sample but not encountered in 500 valve count
Only 200 individuals counted from station 26-6 because of extremely low biomass
**Not used to calculate Diatom Bioassessment Index

Appendix : Boone Creek drainage algal data, 1992

	26-1	26-2	26-3	26-4	26-5	26-6	26-7	26-8
Nitzschia filiformis				8			*	
Nitzschia fonticola			*					
Nitzschia frustulum	4		*	1	*			
Nitzschia gracilis			*	2				
Nitzschia inconspicua	*			*				
Nitzschia kutzingiana			4	4	5			
Nitzschia levidensis				1				
Nitzschia linearis		1		2			1	
Nitzschia palea	3		5	4	57	1	66	6
Nitzschia paleacea	48	11	3	2	12		3	31
Nitzschia perminuta				2	8	1		
Nitzschia recta	*	*	1	1	*			
Nitzschia sigmoidea	*		*		*		*	
Nitzschia sociabilis				5			5	
Nitzschia sp.					*	*		1
Nitzschia spp.				2				
Nitzschia sublinearis				4				
Rhoicosphenia curvata	5	8	34		34		9	153
Stephanodiscus hantzschii		3		2				
Stephanodiscus subtilus		5	1					
Surirella angustata	2	*	*	1			1	
Surirella ovalis			*					
Surirella ovata	4	8	12	14	20	1	40	53
Synedra radians					*			
Synedra rumpens				*				
Synedra ulna	*	*	*	*	*			*
Thalassiosira weissflogii	*							
Metrics								
Number of Frustules counted	500	517	480	499	500	200	500	503
Total # of Taxa	51	47	49	61	56	22	38	31
Shannon Diversity	1.25	1.08	1.16	1.37	1.36	.64	1.11	1.04
Percent Sensitive Species	3.2	1.9	0.2	0.2	0	0	0	0
Pollution Tolerance Index	2.4	2.5	2.2	1.9	2.0	1.3	1.6	2.4
Similarity to Control (PS_C)	NA	39.3	44.2	49.2	36.8	18.9	23.8	26.3
Percent Silt Tolerant Species**	44.0	20.7	35.0	59.9	55.6	83.5	68.4	36.6
DBI								
Diatom Bioassessment Index (DBI) score	**3.5**	**3.2**	**3.0**	**3.0**	**3.0**	**1.2**	**1.8**	**2.4**
DBI classification	**good**	**good**	**good**	**good**	**good**	**poor**	**poor**	**fair**

* Identified in sample but not encountered in 500 valve count
Only 200 individuals counted from station 26-6 because of extremely low biomass
**Not used to calculate Diatom Bioassessment Index

APPENDIX E

Boone Creek Macroinvertebrate Data

Station ID:	04026001	04026002	04026003	04026004	04026005	04026006	04026007
Collection Date:	05/06/92	03/30/92	04/30/92	04/29/92	05/06/92	04/29/92	04/29/92
Spongilla sp			1				
Dugesia sp			6	25	2		
Ferrissia fragilis	10						
Ferrissia rivularis			5				
Fossaria sp					1		
Stagnicola sp	1	2		1			4
Physella sp	5	1	9	3	3		21
Elimia semicarinata	20	16	31	123	38		
Helisoma anceps anceps		1		1	6	1	
Musculium partumeium		1		12			
Pisidium sp	1	1	1	1	2	2	
Sphaerium fabale	1		10	13			
Sphaerium simile		2	11	61	67		
Corbicula fluminea	3						
Eclipidrilus sp.					1		
Nais sp			1				
Nais variabilis							5
Slavina appendiculata							2
Limnodrilus hoffmeisteri							1
Limnodrilus sp		1					
Haplotaxis sp	1		1	4		2	
Unidentified Lumbricid	2			1		2	
Placobdella papillifera				1			
Dina anoculata							1
Paraleptophlebia guttata	3		1				
Isonychia sp	27	71	142	1	4		
Heptagenia aphrodite		17	19				
Heptagenia maculipennis	3						
Stenacron interpunctatum	1	2	37	34	38		
Stenonema femoratum	25	2	1	6	3		
Hexagenia atrocaudata	2			3			
Hexagenia limbata		1					
Ephemerella inconstans		1					
Serratella sordida	2	14	31				
Caenis latipennis	9	12	6	26	52	1	
Acentrella carolina	80	19	6	26	3		
Baetis brunneicolor					11		
Baetis flavistriga	155	232	42	11	62		
Baetis fuscatus gr	29		3	65	18		
Anomalagrion hastatum					1		
Argia moesta					8		
Argia sedula					2		
Argia sp		2	3				5
Enallagma civile		1					
Enallagma daecki				4			
Enallagma divagans	1			4	17		
Enallagma signatum		16	4	10			
Enallagma sp					1		

Note: Qualitative data not included in this report
01/28/97 [A:BOONEEX.DBF]

Station ID:	04026001	04026002	04026003	04026004	04026005	04026006	04026007
Collection Date:	05/06/92	03/30/92	04/30/92	04/29/92	05/06/92	04/29/92	04/29/92
Ischnura posita				14		2	8
Calopteryx maculata	7	21	13	1	10	7	7
Anax junius				1			
Dromogomphus spinosus	2						
Stylogomphus albistylus	2	1					
Erythemis simplicicollis				1			
Libellula luctuosa				1			1
Pachydiplax longipennis				1			
Plathemis lydia							1
Allocapnia sp	1						
Amphinemura delosa	50	42	57	2			
Acroneuria evoluta		2		1			
Perlesta placida	14	136	210	98	148		
Sagara sp	5		3	4	2	3	
Microvelia americana	2					1	1
Neoplea striola				1			
Belostoma lutarium				3			2
Hydrometra martini					1	1	
Gerris remigis		1					
Gerris sp					3		
Helichus basalis						1	
Helichus lithophilus		1					
Ectopria nervosa						3	1
Peltodytes lengi		1		1			
Cyphon sp		1	7	4	1	3	
Tropisternus mixtus				1		1	
Psephenus herricki	32	34	102	1	7	8	
Gyrinus marginellus	7						
Hydroporus sp				1		2	
Oredytes sp					3		
Dubiraphia vittata	2	7	4	7	4	4	
Macronychus glabratus		1		1			
Optioservus ovalis			4				
Stenelmis crenata	6	4	15	11		51	1
Stenelmis quadrimaculata					1		
Stenelmis sexlineata	4	7	50	54	77	4	
Stenelmis sp(larvae)	5	5	39	31	71	6	
Corydalus cornutus		3	8		2	2	
Nigronia serricornis	1	2	11		2		1
Anopheles sp					1		
Hexatoma sp		1					
Limnophila sp		1		1		4	
Limonia sp	1						
Tipula abdominalis	3	4	1	1			
Tipula sp.1			1		2		
Tipula sp.2	1		1				
Hemerodromia sp			2				
Ablabesmyia sp		1					

Note: Qualitative data not included in this report
01/28/97 [A:BOONEEX.DBF]

Station ID:	04026001	04026002	04026003	04026004	04026005	04026006	04026007
Collection Date:	05/06/92	03/30/92	04/30/92	04/29/92	05/06/92	04/29/92	04/29/92
Chironomus riparius gr							135
Chironomus sp	4	31		2			
Conchapelopia sp			2	1			
Corynoneura sp	1			2	1		
Cricotopus bicinctus gr							66
Cricotopus sylvestris gr		3		1	5	2	15
Cricotopus tremulus	13		15	66		6	146
Cricotopus trifascia	12	19	8	10	94	1	21
Cryptochironomus fulvus gr	2	1		3			
Cryptochironomus sp				1			
Dicrotendipes neomodestus							6
Dicrotendipes sp		1			3		
Eukiefferiella brehmi gr.		4			6		
Eukiefferiella devonica gr.	9	38			22		
Eukiefferiella pseudomontana	22		9	20		1	
Glyptotendipes sp				1			
Larsia decolorata			1	1		1	
Microspectra sp				1	1		16
Microtendipes pedellus gr	7	2				2	
Microtendipes sp			1				
Nanocladius sp			1	2	1		
Orthocladius sp	16			2		8	
Orthocladius sp.		3					
Parachironomus sp					1		
Parametriocnemus sp	16	16	32	3	3	18	
Paratendipes albimanus	1	3				2	
Phaenopsectra sp	1						
Polypedilum convictum gr	42	45	20	12	7		
Polypedilum fallax	1						
Polypedilum scalaenum gr		3	1	10	5	6	26
Procladius sp				1			
Rheocricotopus robacki		1			4		
Rheotanytarsus sp		2			2		
Stenochironomus sp		1		2			
Stictochironomus sp	2			8			
Tanytarsus sp		4	1		5	1	
Thienemanniella fusca gr			5				
Thienemanniella sp	8	1		4	3		
Thienemannimyia gr		6	19	6	5	8	2
Tribelos/Phaenopsectra gr		3					
Brachydeutera sp							1
Prosimulium mixtum		2					
Simulium sp	80		14	25	61		16
Simulium vittatum		120					
Chrysops sp			1	1		1	3
Tabanus sp		4			1		
Atrichopogon sp			1				
Bezzia/Johnannsenomyia/Palpolyia gr		3	4				

Note: Qualitative data not included in this report
01/28/97 [A:BOONEEX.DBF]

Station ID:	04026001	04026002	04026003	04026004	04026005	04026006	04026007
Collection Date:	05/06/92	03/30/92	04/30/92	04/29/92	05/06/92	04/29/92	04/29/92
Culicoides sp				1			
Palpomyia/Sphaeromias gr						3	
Pycnopsyche lepida				1			
Hydroptila sp	1	1		1	3		
Ochrotrichia sp	1	1	1	42		58	
Rhyacophila carolina		1					
Rhyacophila ledra	1	17	34	30	1	35	
Helicopsyche borealis	13		3	7			
Neophylax mitchelli	92		4				
Agapetus sp		6					
Glossosoma sp	2						
Cheumatopsyche sp	1	4	1		40		
Hydropsyche betteni		4	6				
Psychomyia flavida		1					
Chimarra aterrima	1	26	25				
Chimarra obscura			6				
Wormaldia sp	2	23	10				
Cyrnellus fraternus	1			3			
Polycentropus sp		3					
Crangonyx sp	2	3	23	69	8	18	6
Lirceus fontinalis	86	154	251	218	200	171	14
Cambarus ortmanni		1		1		4	
Orconectes rusticus		2			15	3	
Total Number of Individuals (TNI):	966	1254	1398	1236	1172	460	535
Total Number of Taxa (TNT):	68	81	67	81	62	42	30
Shannon Diversity Index (H):	1.39	1.35	1.36	1.41	1.32	1.07	1.00
Peilou's Evenness Index (J):	0.76	0.71	0.74	0.74	0.74	0.66	0.68

Note: Qualitative data not included in this report
01/28/97 [A:BOONEEX.DBF]

APPENDIX F

Boone Creek Fish Data

BOONE CREEK FISH DATA

Station ID:	04026001	04026002	04026003	04026004	04026005	04026006	04026007
Collection Date:	05/06/92	04/30/92	04/30/92	04/29/92	05/06/92	04/29/92	04/29/92
Campostoma anomalum	5	20		1	2		
Cyprinella whipplei	25	1					
Luxilus chrysocephalus	100	23	7	105			
Lythrurus ardens		30	595	82	55		
Notropis boops		2					
Notropis rubellus	100	100					
Notropis volucellus	20						
Pimephales notatus	100	50	527	122	200		33
Pimephales promelas			48	8	51		137
Rhinichthys atratulus				7	7		12
Semotilus atromaculatus		7	12	22	16	4	46
Catostomus commersoni			1	1	1		
Hypentelium nigricans	1	1					
Gambusia affinis				20		40	
Cottus carolinae	10	2	2	5	63		
Lepomis cyanellus			1		3	1	4
Lepomis macrochirus	3			7	1		
Lepomis megalotis	20	2	3	8	2		
Micropterus punctulatus	1						
Etheostoma blennioides	1	7			1		
Etheostoma caeruleum	17	9	8	21			
Etheostoma flabellare	1	5	11	21	27	9	8
Etheostoma spectabile					20	20	26
Percina caprodes	8						
Total Number of Individuals (TNI):	412	259	1215	430	449	74	266
Total Number of Taxa (TNT):	15	14	11	14	14	5	7
Shannon Diversity Index (H):	0.84	0.82	0.45	0.86	0.76	0.50	0.63
Peilou's Evenness Index (J):	0.72	0.72	0.43	0.75	0.66	0.72	0.74

Note: Qualitative data not included in this report
06/05/97 [A:BOONEFEX.DBF]