

## *Appendix A*

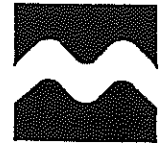
### **PERTINENT WORK PLAN DOCUMENTS**

*Pertinent portions of the following sequence of documents are included:*

- *December 29, 1999 MEC to USEPA and TDEC*
- *August 1, 2000 USEPA to Velsicol*
- *September 5, 2000 MEC to USEPA and TDEC*
- *December 14, 2000 USEPA to Velsicol*
- *January 16, 2001 MEC to TDEC*

MEMPHIS ENVIRONMENTAL CENTER, INC.

2603 Corporate Avenue, Suite 100  
Memphis, Tennessee 38112  
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December 29, 1999

Mr. Richard D. Green  
United States Environmental Protection Agency  
Atlanta Federal Center  
61 Forsyth Street, Southwest  
Atlanta, Georgia 30303-8950

Mr. J. M. Apple  
Tennessee Department of Environment and Conservation  
L&C Tower, Fifth Floor  
401 Church Street  
Nashville, Tennessee 37243-1535

**Re: Work Plan Submittal  
Velsicol Chemical Corporation, Memphis Facility  
EPA I.D. No. TND 007-024-664**

Dear Mr. Green and Mr. Apple:

As required by the letter dated July 28, 1999, from Mr. M. Narindar Kumar of the United States Environmental Protection Agency (USEPA), and subsequent meetings with USEPA and Tennessee Department of Environment and Conservation personnel, Memphis Environmental Center, Inc. is submitting on behalf of Velsicol Chemical Corporation, the Work Plan for Investigation of Soil and Sediment Contamination Along Cypress Creek, Memphis, Tennessee.

Please contact me if you have any questions or need additional information.

Sincerely,

Memphis Environmental Center, Inc.

Gary J. Hermann, P.E.  
Senior Environmental Projects Manager

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Enclosure

c: Glenda Akins, VCC Memphis  
Roger Donovan, TDEC  
Leo Romanowski, USEPA  
Greg Roush, Law Environmental

**WORK PLAN  
FOR INVESTIGATION  
OF  
SOIL AND SEDIMENT CONTAMINATION  
ALONG CYPRESS CREEK  
MEMPHIS, TENNESSEE**

**Prepared For  
Velsicol Chemical Corporation  
Memphis, Tennessee**

**Prepared By  
Memphis Environmental Center, Inc.  
Memphis, Tennessee**

**December 29, 1999**

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## 1.0 INTRODUCTION

Cypress Creek is an approximately 7.5 mile long, concrete lined sewer, which flows from the center of the city northwest to the Wolf River in Memphis, Tennessee. The Wolf River subsequently discharges into the Mississippi River. Beginning in the 1950s, the United States Army Corps of Engineers (USCOE) constructed a levee system in order to prevent flooding of the northern section of Memphis. Concurrent to the levee system construction, a pumping station was constructed to convey storm water from Cypress Creek to the Wolf River during times of high water. During normal flow conditions, storm water from Cypress Creek flows under gravity to the Wolf River through floodgates, which are normally left open. A widened portion of Cypress Creek (hereinafter referred to as the surge basin) exists between Chelsea Avenue and the pumping station (see *Figure 1*).

Historically, Cypress Creek was a natural water course that served as the discharge point for storm water and sanitary and industrial waste water discharges within the drainage basin. Beginning in the 1930s and extending into the early 1960s, Cypress Creek was widened and lined with concrete from its headwaters to the Evergreen Street bridge. Cypress Creek is unlined from the Evergreen Street bridge to the Wolf River. The improvements (i.e., widening, concrete lining) were made by the City of Memphis in order to help convey storm water from the drainage basin to the Wolf River. On May 17, 1977, the Tennessee Water Quality Board issued a Declaratory Ruling stating that Cypress Creek was a storm water channel and not a stream.

Prior to the construction of the City of Memphis' North Treatment System in the late 1950s, Cypress Creek was the receptor of storm water and sanitary and industrial waste water from companies located along the creek including, but not limited to, Velsicol Chemical Corporation (VCC), Buckman Laboratories, Inc. (Buckman), and Buckeye Cellulose Corporation (Buckeye).

## 2.0 BACKGROUND

Various investigations of the Cypress Creek channel have been performed. The majority of these investigations has centered around the surge basin and nearby waste disposal sites (i.e., Bellevue Avenue Landfill and North Watkins Street Landfill). Investigations of Cypress Creek indicated the presence of polynuclear aromatic hydrocarbons (PAHs), pesticides, and metals, with the highest concentrations of those compounds detected in the surge basin itself. The laboratory data from the previous investigations of the Cypress Creek channel sediments are summarized in *Table 1*.

On September 15, 1997, the Tennessee Department of Environmental and Conservation (TDEC) sent general notice letters to VCC, Buckman, Buckeye, and the City of Memphis requesting information regarding the recipients' relationship to the Cypress Creek "Site" and other relevant information. VCC responded to the letter of inquiry on October 17, 1997. No further action was apparently taken by TDEC following the response.

In 1997, contamination was identified at the Jackson Avenue viaduct, a construction site located between Cypress Creek and the southwest corner of the VCC facility, in the area of the facility's storm water discharge line (outfall #003) and just outside the concrete liner on the east side of the channel. The local utility company observed odors while excavating for underground utility work. Samples of the excavated soil were collected and analyzed by the Tennessee Department of Transportation (TDOT). The samples had elevated concentrations of aldrin, dieldrin, endrin, endrin-ketone, heptachlor, and alpha and gamma chlordane.

On July 28, 1999, USEPA directed VCC to investigate the extent of contamination along Cypress Creek. VCC requested a meeting in order to identify information that may be available regarding Cypress Creek including, but not limited to, previous investigations, construction records of the concrete channel, records of dredging/placement of the surge basin and creek bottom sediment, etc.

A tour of the Cypress Creek basin and subsequent meeting at VCC was held on October 4, 1999, and was attended by personnel from Memphis Environmental Center (MEC)/VCC, United States Environmental Protection Agency (USEPA), TDEC, and the City of Memphis.

This work plan was developed using information sources identified during the October 4, 1999, meeting.

### 3.0 HISTORIC INFORMATION

Following the October 4 meeting, MEC conducted file reviews at TDEC, USCOE, and the City of Memphis Engineering Department. The Memphis/Shelby County Health Department and Memphis/Shelby County Historical Society were also contacted regarding records. Additionally, the USEPA provided reports on activities at Bellevue Avenue Landfill and North Watkins Street Landfill. Information from the file reviews was utilized in preparing the laboratory data summary (*Table 1*) and the map of previous sampling locations (*Figure 2*).<sup>1</sup>

Section 5 contains a list of reference documents that were utilized in preparing *Table 1*. A summary of the sampling events within Cypress Creek is as follows:

<u>Year</u>	<u>Sampling Event</u>
1964	USEPA collected 5 sediment samples on two different dates along Cypress Creek from the Jackson Avenue overpass to the Cypress Creek pumping station. The analytes reported were endrin and dieldrin. <sup>1</sup>
1980	USEPA collected 3 sediment samples along Cypress Creek from Evergreen Street to the pumping station. Analytes reported were volatile organic compounds (VOCs), PAHs, and pesticides. <sup>1</sup>

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<sup>1</sup> The historical records located, with the exception of the studies performed in the 1990s, are not complete with regard to, among other things: sampling depths, methodology, and laboratory QA/QC. Nevertheless, these results have been included in *Table 1* and *approximate* sample locations have been placed on *Figure 2* based on descriptions for each sampling event.



- 1981 Memphis/Shelby County Health Department collected 9 sediment samples along Cypress Creek from Evergreen Street to the pumping station. Analytes reported were pesticides only.<sup>1</sup>
- 1992 Dynamac Corporation (for USEPA Region IV) collected 7 sediment samples along Cypress Creek from Evergreen Street to the Wolf River. Analytes included VOCs, PAHs, pesticides, and metals.
- 1993 Black & Veatch (for USEPA Region IV) collected 5 sediment samples along Cypress Creek from Watkins Street to the Wolf River. Analytes included VOCs, PAHs, pesticides, and metals.

Based upon the review conducted by MEC, neither the City of Memphis nor the USCOE has construction records for the Cypress Creek drainage system. The City of Memphis has limited design drawings for Cypress Creek. Construction records indicating actual construction methods, locations of improvements, and placement of dredged/removed material, could not be located by the City of Memphis, USCOE, or the Memphis/Shelby County Historical Society.

A comparison of the Cypress Creek channel, using a topographic map from 1955 and an aerial photograph from 1995, was conducted and the results are depicted on *Figure 3*. The year 1955 was chosen since the City of Memphis maintains a topographical survey map from this date which depicts what is believed to be the original location of Cypress Creek, prior to improvement work, the majority of which was done in the early 1960s. The year 1995 represents the most recent aerial photograph available.

*Figure 3* indicates that the general location of Cypress Creek did not change significantly between 1955 and 1995. The existing City records (design drawings) indicate that the improvements contemplated generally included widening, and occasionally straightening, the channel. Typically, the drawings indicate that the alterations in location of the channel were minor. These alterations would likely not show up on *Figure 3* due to the scale.

## 4.0 INVESTIGATION WORKPLAN

### 4.1 Objectives and Approach

The objective of the Cypress Creek soil and sediment investigation is to further define the type and extent of contamination along Cypress Creek from Scott Street to the surge basin. Scott Street is located upstream from VCC's storm water outfall.

To accomplish this objective, samples along Cypress Creek from Scott Street to the surge basin will be collected and analyzed. Samples will be collected from within the channel itself and from outside of the side walls.

Agency approved documents for the RCRA Corrective Action Program (CAP) at the VCC facility will be utilized in field, analytical, and reporting procedures utilized during the investigation. Specifically, the RCRA CAP Sampling and Analysis Procedures (SAP) (issued October 24, 1994, and revised May 28, 1999) and RCRA CAP Health and Safety Plan (December 1995) will be followed during this project. The SAP details the various sampling collection procedures that may be utilized and describes the analytical protocol to be followed for sample analyses.

### 4.2 Scope of Work

Samples will be collected from the approximate locations noted on *Figure 2*. These locations were selected based on a review of previous sample locations, analytical results, historical records, and location of Cypress Creek through time. A review of these locations, with the City of Memphis, indicates that these locations are feasible to be sampled. Prior to sample collection, utilities will be located and actual sample locations may be varied slightly.

Six (6) sampling transects will be conducted along Cypress Creek at the locations noted in *Figure 2*. Samples will be collected from beneath the floor and outside of the

side walls of the Cypress Creek concrete lining at locations T-1 through T-5, and from the bottom and sides of the unlined portion of Cypress Creek at location T-6. Additionally, two overbank samples will be collected from each side of Cypress Creek at location T-6.

A SIMCO™ direct push (i.e., GeoProbe™) or similar unit will be used for sample collection using a dual wall system to prevent hole collapse and permit collection of discrete samples. At sample locations T-1 through T-5, the concrete lining will be cored at each location. Samples of native material will be collected from beneath the concrete lining at a depth of 6" to 18" below the lining and associated, visibly present, structural fill. These sample locations will be placed at approximately the center of the lining depending upon low flow conditions within Cypress Creek.

The samples to be collected from outside the side walls will be collected by sampling the depth interval of 2' to 4' from the surface. This depth is believed to be indicative of creek sediments that may have been used as backfill outside of the side walls. At sample location T-6, the sampling technique will be the same with the exception that concrete coring will not be necessary. A schematic of the sample locations within each transect is located on *Figure 4*. If necessary, hand augering, or other techniques outlined in the SAP, will be used to collect samples which are inaccessible to the direct push unit.

Based on the previous investigation results, the samples will be analyzed for PAHs, non-volatile organochlorides (NVOs, commonly referred to as pesticides), and metals per the SAP. The data will be validated according to procedures specified in the SAP to achieve Data Quality Objectives (DQO) Level III. The data will be evaluated and summarized in a report that will include analytical data summary tables and figures showing the sampling locations.

### **4.3 Schedule**

The proposed schedule for completing the work is presented in *Figure 5*. The proposed schedule is predicated upon receiving Agency approval of this work plan, contractor availability, and no unforeseen occurrences or inclement weather which would result in delays.

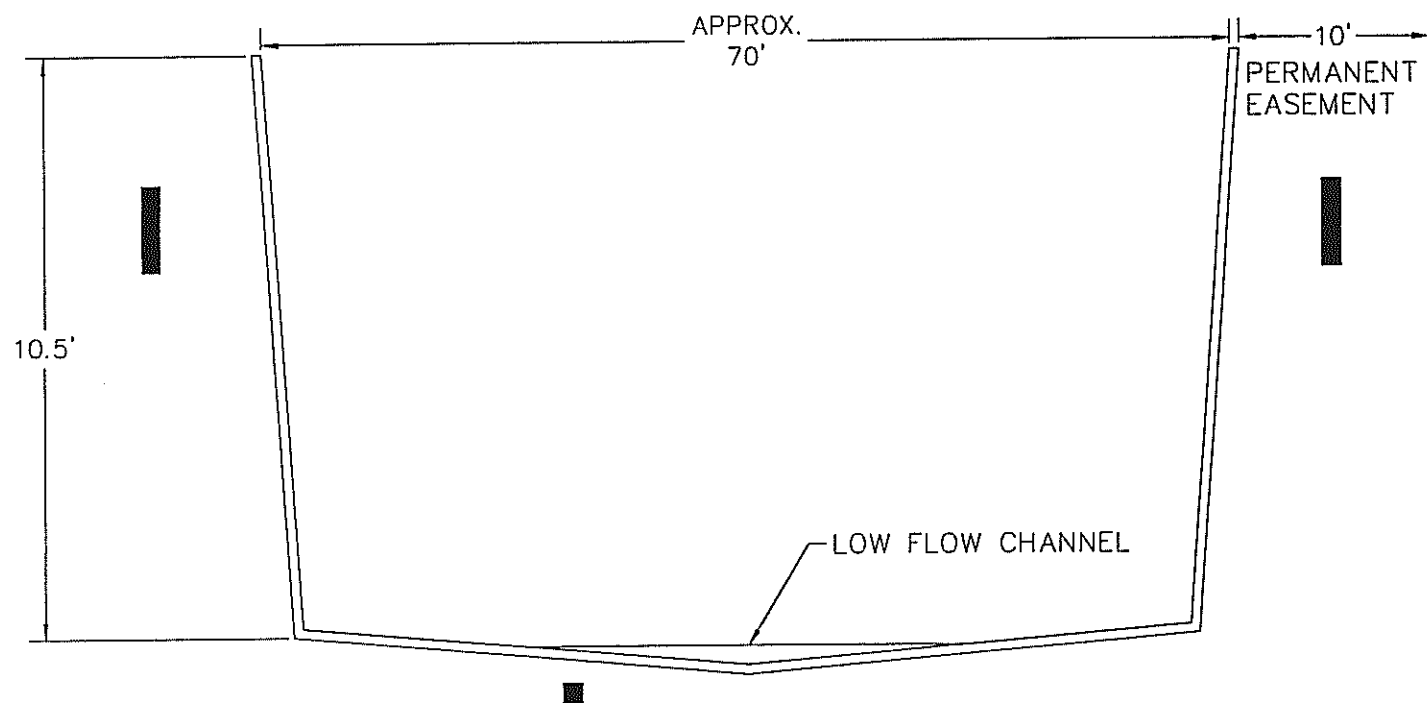
## 5.0 REFERENCES

### File Review

1. City of Memphis, Tennessee - Engineering Department Records
2. Memphis/Shelby County Historical Society – Historical Records
3. United States Army Corp of Engineers – Construction/Historical Records
4. Tennessee Department of Environment and Conservation – File Review
5. United States Environmental Protection Agency – Files

### Reports/Documents

1. Physical and Biological Evaluation, Cypress Creek, Resource Consultants, January 1977
2. Declaratory Ruling, Tennessee Water Quality Board, May 17, 1977
3. Report Hazardous Waste Site Investigations, Bellevue Dump Area, Memphis, Tennessee, USEPA Region IV, June 4, 1981
4. Report Hazardous Waste Site Investigation, Wolf River/North Watkins Street Site, Memphis, Tennessee, USEPA Region IV, July 21, 1981
5. Report Hazardous Waste Site Investigation, Warford Street Site, Memphis, Tennessee, USEPA Region IV, September 30, 1981
6. City of Memphis Memorandum regarding Cypress Creek, January 6, 1982
7. Tennessee State Superfund Program Legislative Report, January 31, 1985
8. USEPA Potential Hazardous Waste Site-Preliminary Assessment, Cypress Creek, August 23, 1985
9. Revised Final Site Inspection Report, Cypress Creek, Dynamac Corporation for USEPA Region IV, July 27, 1992
10. Final Expanded Site Inspection, Bellevue Avenue Landfill, Black & Veatch Waste Science and Technology for USEPA Region IV, December 3, 1993
11. Tennessee Department of Environment and Conservation, Letter to File #79-517 by Floyd Helflin regarding Bellevue Avenue Landfill – Cypress Creek – Wolf River/North Watkins, July 20, 1994




TYPICAL CROSS SECTION  
CYPRESS CREEK CHANNEL ( CONCRETE LINED)

■ SAMPLE INTERVAL

NOT TO SCALE

VESICOL CHEMICAL CORPORATION  
MEMPHIS, TENNESSEE

**LAW**  
LAWGIBB Group Member 

TRANSECT SAMPLE LOCATION  
CYPRESS CREEK

JOB NO. 12000-9-0035

FIGURE 4

PREPARED BY/DATE  
CHECKED BY/DATE



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 4  
ATLANTA FEDERAL CENTER  
61 FORSYTH STREET  
ATLANTA, GEORGIA 30303-8960

FILE COPY

4WD-RPB

AUG 01 2000

RECEIVED

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

AUG 4 2000

Ms. Glenda Akins, Plant Manager  
Velsicol Chemical Corporation  
1199 Warford Street  
Memphis, TN 38108-0127

MEMPHIS ENVIRONMENTAL CTR

SUBJ: **Joint Conditional Approval** – RFI Workplan for Off-Site Investigation of Soil and Sediment Contamination along Cypress Creek  
Velsicol Chemical Corporation (VCC), Memphis, Tennessee  
EPA ID No. TND 007 024 664

Dear Ms. Akins:

The Environmental Protection Agency (EPA) and the Tennessee Department of Environment and Conservation (TDEC) have reviewed the RFI Workplan for Investigation of Soil and Sediment Contamination along Cypress Creek, dated December 29, 1999, which was submitted by Memphis Environmental Center, Inc., on behalf of the Velsicol Chemical Corporation (VCC), Memphis, Tennessee. Based upon our review, this focused RFI Workplan has been **conditionally approved for immediate implementation** contingent upon incorporation of the enclosed comments and recommendations (see Attachment A). Responses and clarifications which address the contingent conditions are due no later than thirty (30) calendar days from receipt of this letter.

EPA's major concern reflects the need to increase the scope of sampling and provide sufficient screening data to satisfy Region 4 Data Quality Objectives (DQO) for appropriate human and ecological screening-level risk assessments. By incorporating these DQO parameters early into the decision-making process, VCC and the Agencies can communicate to the public a clear rationale for human and ecological risk management actions. For assistance in understanding the data needs for a Preliminary Risk Assessment, please refer to EPA Region 4 Web site for Region 4 Supplemental Guidance to Risk Assessment Guidance for Superfund (RAGS) ([www.epa.gov/region4/waste/offices/otsgrid](http://www.epa.gov/region4/waste/offices/otsgrid)).

Although some data was omitted, the Agencies are pleased with VCC's efforts to compile and summarize historic Cypress Creek soil and sediment data collected by EPA, TDEC and Shelby County Health Department from 1964 to 1993. This information coupled with VCC's expanded off-site investigation of nearby drainage ditches and downstream portions of Cypress Creek is critical to meeting our mutual commitments regarding the "Good Neighbor Contingency Plan" to notify, inform and potentially assist municipal and industrial neighbors regarding

contaminant exposure along Cypress Creek.

We also request that VCC develop and mail a follow-up brochure similar to the excellent "VCC- Offsite Soil & Sediment Contamination Information" brochure initially mailed on February 11, 2000. Since the Agencies have immediate concerns regarding pesticide contaminant redeposition and human exposure during potential "community stream restoration projects and voluntary beautification programs" along Cypress Creek, this updated brochure should include at a minimum:

1. a summary of recent results and an updated map of the completed off-site investigation;
2. a progress report regarding preliminary risk assessment evaluations for multiple human and ecological exposure pathways, and;
3. a discussion of appropriate health and safety protocols for stream restoration projects.
4. possible assistance to the City of Memphis to remove contamination and minimize redeposition of contaminated sediments at Cypress Creek surge basin.

Regarding another topic: several months ago, in a letter dated December 17, 1999 (Kumar to Akins, Joint Conditional Approval of Four VCC RFI/CMS Workplans), we indicated that EPA had tentatively targeted the VCC- Memphis facility for satisfying the GPRA Environmental Indicators (CA725 and CA750) within the next two years (FY 2000 and FY 2001). You were also asked to review your corrective action budget and schedule (5-Year Plan) and notify EPA if these tentative dates are mutually achievable. EPA has not yet received your response to this request. Please submit responses and clarifications which address Agency comments and recommendations to both the EPA and TDEC no later than thirty (30) calendar days from receipt of this letter. Also, include copies with the final RFI Report.

If there are any questions regarding this matter, please contact Leo J. Romanowski, Jr., Corrective Action Specialist, of the RCRA Programs Branch at (404) 562-8485 and Roger Donovan of TDEC at (615) 532-0864.

Sincerely yours,



Narindar M. Kumar, Chief  
RCRA Programs Branch  
Waste Management Division

Enclosures:           1. EPA Comments on VCC Workplan (12/29/99)  
                              2. TDSF Comments (letter dated 3/16/2000)

cc w/encl:           Roger Donovan, TDEC - Nashville  
                              ✓ Gary Hermann, Memphis Environmental Center (MEC), Inc.  
                              Paul Patterson, DPW, City of Memphis, TN  
                              Jordan English, TDSF - Memphis  
                              Beth Brown-Walden, WMD, EPA



## ATTACHMENT A

## EPA COMMENTS

on

RFI WORK PLAN for Investigation of Soil and Sediment  
Contamination along Cypress Creek, Memphis, TN (December 29, 1999)

Velsicol Chemical Corporation, Memphis, Tennessee  
EPA ID No. TND 007 024 664

EPA GENERAL COMMENTS

VCC is strongly encouraged to expand the number of sampling locations/transects to verify previous historical data. Since a Human Health and a Ecological Risk Assessment will likely be required for Cypress Creek, VCC should begin following a Data Quality Objective (DQO) Process to be certain that sufficient sample type, quantity and quality of data are collected to simplify appropriate risk-management decision making. For example, sample transects must also include shallow soil sampling at 6-12" depth. Please refer to EPA Region 4 Web site for Region 4 Supplemental Guidance to Risk Assessment Guidance for Superfund (RAGS) for assistance in understanding the data needs for a Preliminary Risk Assessment. ([www.epa.gov/region4/waste/oftees/otsguid](http://www.epa.gov/region4/waste/oftees/otsguid)).

EPA has particular concerns with the historically documented elevated (average) levels of dieldrin, benzopyrene and benzo (a) pyrene measured along Cypress Creek which exceed the industrial human health RBCs for soils by 137, 9 and 5- fold. Additionally, the Region 4 Sediment Screening Values for ecological risk are exceeded for about five (5) pesticides and at least eleven (11) SVOCs. Thus, VCC should begin accumulating appropriate data with sufficient QA/QC and begin developing a **Preliminary Risk Assessment for Cypress Creek**. Of course, a complete risk assessment for Cypress Creek must also address the many other pesticides, metals and SVOCs which exceed the residential as well as the industrial human health RBCs.

Table 1 and Figure 2 did not include all the sampling summaries provided by the Agencies per our October 4, 1999 meeting (TDEC, TDSF, City of Memphis, MEC, VCC and EPA) at VCC, Memphis. Table 1 should also include the soil analyses adjacent to and along Cypress Creek as well as the sediment analyses. For completeness, Figure 2 should also include sediment data from Wolf River - Cypress Creek intersection (i.e., sediment samples CC- SD-01 and -02).

EPA SPECIFIC COMMENTS

Section 1.0 Introduction (page 1) and Figure 1 —

1. Although mentioned several times as the geographical limit for the concrete-lined

portion of Cypress Creek. Evergreen Street (bridge) is not labeled on the Cypress Creek Site Vicinity Map of Figure 1. Revise the Figure 1 map to indicate Evergreen Street. Also, indicate and label the plant boundaries of the Velsicol facility and all of the concrete-lined portions of Cypress Creek.

2. Indicate the sections of Cypress Creek which were actually designated in 1977 by the Tennessee Water Quality Board as a storm channel and exempt from stream protection. Does this declaration include the unlined and natural portions of Cypress Creek (i.e. green-ways or park ways) from the Evergreen Street Bridge to the Wolf River? Does this declaration also imply that aquatic life, fish, ecological stream conditions are exempt from environmental protection by the State of Tennessee? This designation is critical to the risk assessment present and future use scenarios, institutional controls and comparison of contaminant levels to the Agencies action levels (residential or industrial Risk-Based Concentrations- RBCs and ecological screening values). Please explain. Also, provide a copy of this specific Cypress Creek declaration by the Tennessee Water Quality Board.

3. Please clarify the dates of Velsicol wastewater discharge into Cypress Creek. EPA references indicates that Velsicol was releasing process wastewater into Cypress Creek prior to June 1963. However, in the 3<sup>rd</sup> paragraph, Velsicol states that process wastewater was directed to the City of Memphis North Treatment System in the late 1950's. This implies that VCC stopped discharging industrial wastewater into Cypress Creek about 4-6 years earlier than our EPA records indicate.

4. Discuss and explain the chronology (include a table, time-line or chart) of when Velsicol ceased discharging process wastewater and stormwater into Cypress Creek. Indicate the years of pesticide manufacture (for each specific pesticide), operation and closure dates of process wastewater treatment ponds and lagoons (i.e., SWMUs 31 and 51), dates of industrial and chemical sewer operation and major sewer upgrades, and dates of initial NPDES permit discharges to both Cypress Creek and to the City of Memphis treatment plants (South plant and/or North plant).

#### Section 2.0 Background (page 2), Table 1 and Figure 2 —

5. The analytical data from the TDOT excavation at the Jackson Street viaduct project over Cypress Creek were discussed in the 3<sup>rd</sup> paragraph. However, none of this data was included in the Table 1 Summary or shown on Figure 2 - Previous/proposed Sampling Locations for Cypress Creek. Please revise and include this data in Table 1 and Figure 2.

#### Section 3.0 Historic Information and Table 1 and Figure 2 —

6. All appropriate historical analytical data previously provided by the Agencies (EPA/TDEC/MSCHD) should have been tabulated and summarized to obtain a more complete representation of the historical extent of pesticide contamination along the Cypress Creek waterway. These data should also include the soil analyses adjacent to and along Cypress Creek as well as the sediment analyses at the Wolf River (i.e., CC-SD-01, CC-SD-02). Why were

numerous soil analyses excluded from Table 1 and Figure 2? As you know, the City of Memphis routinely excavates the Cypress Creek flood channel within the surge basin upstream of the Wolf River pumping station and spreads the removed sediments over the creek banks. Thus, it is likely that the contaminant levels in the present soil originated from and represent the historic contaminant levels in the creek sediments. Please revise and include all appropriate soil data.

7. Also, discuss VCC actions for providing more appropriate assistance to the City of Memphis to analyze and remove pesticide contamination and minimize future redeposition of sediment contamination within the Cypress Creek surge basin. Discuss options for the proper disposition of these dredged sediments such as Subtitle C or D landfill and a future CAMU at VCC.

8. Please add "text boxes" to Figure 2 to detail the pesticide concentrations and depth for all previous and new sample locations. VCC has successfully used these text boxes in previous reports.

9. To simplify future risk management discussions, also include the appropriate EPA action levels for soil and sediments for all of the detected constituents in the Table 1- "Summary of Historical (Soil and) Sediment Analyses - Cypress Creek." Highlight in bold print all measured contaminant concentrations which exceed the action levels. As Velsicol is aware, these action levels include the EPA Region 3 RBCs (risk-based concentrations) for soils in both residential and industrial scenarios and the Region 4 Sediment Screening Values. The Sediment Screening Values are contained in the Region 4 Supplemental Guidance to Risk Assessment Guidance for Superfund (RAGS) under Ecological Risk Assessment Bulletins (Table 3) which can be accessed at [www.epa.gov/region4/waste/officeser/otsguid.htm](http://www.epa.gov/region4/waste/officeser/otsguid.htm)

10. Also, provide a table listing the anticipated, historical or documented half-lives for the contaminants of concern. This information will be useful in recognizing time trends in probable natural degradation of the contaminants along Cypress Creek.

11. Assuming the historical data (1964 to 1993) was of appropriate QA/QC status, did VCC recognize any historical trends (spatial and temporal) in pesticide concentrations along Cypress Creek? How has the measured pesticide concentrations along Cypress Creek varied over the past 20-30 years of intermittent analysis? Please explain.

#### Section 4.0 Investigation Workplan (pp. 5 - 7) ---

12. Revise the objectives, schedule and Figure 5 of this Cypress Creek Investigation to include data accumulation for a Preliminary Risk Assessment. We recommend that a separate section be created to discuss the basics of the Preliminary Risk Assessment for both the human health and ecological components.

13. Please label "Scott Street" on Figure 2.

14. Increase the scope of work to include adequate data collection to support the DQO's for a Preliminary Risk Assessment. This should include between 12 and 24 additional shallow soil samples at depths of 6-12 inches along banks of Cypress Creek. EPA suggests at least six (6) additional shallow soil sampling sites be proposed between Springdale Street Baptist Church, Cypress Creek Junior High School and University Blvd. Please revise text and Figure 2.

15. Because of potential exposure during stream restoration and pesticide redistribution concerns during sediment dredging in the City of Memphis Surge Basin, EPA also suggests at least four (4) additional transects (stream sediment plus two shallow bank soils samples per transect) in the unlined creek portion between Evergreen Street and the Cypress Creek Surge Basin. Please revise text and Figure 2.



**STATE OF TENNESSEE - DIVISION of SUPERFUND**  
Environmental Assistance Center- Memphis (EAC-M)  
Memphis, Tennessee 38115-1520

March 16, 2000

Ms. Beth Brown Walden  
Environmental Project Manager  
United States Environmental Protection Agency  
Region IV, Waste Management Division  
61 Forsyth St.  
Atlanta, GA 30303

Re: Comments on the Work Plan for Investigation of Soil and Sediment Contamination Along Cypress Creek,  
Memphis, Tennessee; TDSF Site # 79-518, cc01.

Dear Ms. Walden:

Per your request the Tennessee Division of Superfund (TDSF), Environmental Assistance Center- Memphis (EAC-M) has reviewed the above referenced document, dated 12/29/99 and received in this office on 3/15/00. The following comments are provided.

1. A map that shows the total lined reach of Cypress Creek would be helpful.
2. The description of the Creek on page 1, line 1 as "...concrete lined sewer..." is perhaps a bit negative. "Storm water channel..." as described in paragraph two seems more appropriate.
3. TDSF, EAC-M does not understand the need for sampling beneath the concrete channel. Unless contaminant mobility is the issue, these contaminants appear to be adequately shielded from all other potential receptors.
4. TDSF, EAC-M would prefer to bias locate sample points along the Creek that correspond to areas appearing to have potential for relatively undiluted spoils.
5. At least some sample points should be located on the inside bank of meanders where maximum deposition would be expected to occur.
6. Samples should be collected from beneath the root structures of grass and short vegetation down to about 1 foot. This zone is most likely to be contacted by residents.

Please let us know if we can clarify any of these comments or if you need further assistance. If you wish to discuss, please call at (901) 368-7953.

Sincerely,

(E-mail submittal)

Jordan English, Manager  
Tennessee Division of Superfund  
Environmental Assistance Center-Memphis

C: TDSF, NCO file  
TDSF, EAC-M file

**MEMPHIS ENVIRONMENTAL CENTER, INC.**

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September 5, 2000

**FILE COPY**

Mr. Richard D. Green  
United States Environmental Protection Agency  
Atlanta Federal Center  
61 Forsyth Street, Southwest  
Atlanta, Georgia 30303-8950

Mr. J. M. Apple  
Tennessee Department of Environment and Conservation  
L&C Tower, Fifth Floor  
401 Church Street  
Nashville, Tennessee 37243-1535

**Re: Response to EPA and TDEC Comments  
Work Plan for Investigation of Soil and Sediment  
Contamination Along Cypress Creek, Memphis, Tennessee  
Velsicol Chemical Corporation, EPA I.D. No. TND 007-024-664**

Dear Mr. Green and Mr. Apple:

Velsicol's response to your July 31, 2000, Joint Conditional Approval letter and comments on the Work Plan, which we received on August 4, is attached. We will begin to implement the Work Plan, as revised herein, as soon as we receive your approval of this response.

Please contact me if you have any questions or need additional information.

Sincerely,

Memphis Environmental Center, Inc.

Gary J. Hermann, P.E.  
Senior Environmental Projects Manager

\\MEC201\VOL4\Word\Site003\Cypress Creek Workplan\response.doc

Attachment

c: Glenda Akins, VCC  
Roger Donovan, TDEC (via FedEx)  
Leo Romanowski, USEPA (via FedEx)  
Paul Patterson, City of Memphis

**Velsicol Chemical Corporation Response  
To EPA Comments Dated July 31, 2000  
On the December 29, 1999  
Work Plan for Investigation of Soil and Sediment  
Contamination Along Cypress Creek**

**GENERAL RESPONSE AND PROPOSED WORK PLAN APPROACH**

Velsicol proposes the following modified approach to investigating the soil and sediment contamination conditions along Cypress Creek.

Step 1. Perform the soil and sediment sampling program as defined in the original December 29, 1999, Work Plan, with the addition of 18 surficial soil samples. These will be collected from the surface (or from just below grass sod root depth) to 12 inches deep as noted on the enclosed *Revised Figures 2 and 4*. The 18 additional samples will be collected as follows:

- At the five transect locations previously proposed by Velsicol on the concrete lined section, surficial samples will be collected from each side of the channel. These will be collected in the same locations as the previously proposed 2- to 4-foot depth samples (+10 samples).
- At the one transect (T-4) proposed by Velsicol downstream of the concrete lined section, surficial samples will be collected in the same overbank locations as the previously proposed 2- to 4-foot depth samples (+4 samples). (T-6) error
- Four (4) surficial sampling locations will be added between Springdale Street Baptist Church, Cypress Creek Junior High School and University Blvd. at the locations noted on the enclosed *Revised Figure 2*. Note that two surficial samples were added to this reach of Cypress Creek by the addition of two surficial samples at transect location T-4 (+4 samples equals a total of + 6 for this reach).
- This will increase the originally proposed number of samples from 20 to 38.

Step 2. All of the samples will be analyzed and validated according to the requirements of the Agency approved RCRA Corrective Action Program Sampling and Analysis Procedures (SAP), as revised May 28, 1999, to achieve Data Quality Objective Level III, as also defined in the approved SAP.

Step 3. The investigation methods and analytical results will be presented and evaluated as proposed in the original Work Plan. The methods and findings will be presented in a report entitled Cypress Creek Investigation and Preliminary Risk Assessment Report (IPRA Report).

Step 4. The investigation scope of work and the IPRA Report will also be expanded to include a preliminary human health risk assessment.

This preliminary risk assessment will use the newly acquired analytical data plus appropriate soil and sediment data from the previous investigations identified in the Work Plan. Specifically, the preliminary risk assessment will include existing analytical data from the following sampling locations depicted on *revised Figure 2*:

- Cypress Creek channel sediments.
- Cypress Creek overbank and undeveloped flood plain areas.
- Areas within the Surge Basin where sediments dredged or excavated from the creek channel by the City of Memphis have been placed.
- Downstream of the Cypress Creek lift station to its confluence with the Wolf River.

The scope of the preliminary risk assessment will not include analytical data from developed lands (except the proposed 38 new soil sampling locations), the Bellevue Avenue Landfill, the North Watkins Street Site, tributaries to Cypress Creek or other non-contiguous areas.

The selected analytical data will be compared to site-specific risk-based concentrations calculated using the EPA Region 9 Preliminary Remediation Goals (PRG) equations and exposure parameters specific to the site conditions. This will include comparisons using industrial and residential land use scenarios, as appropriate. Areas that have soils or sediments that exceed the site-specific risk-based concentrations will be identified.

Where necessary and appropriate, the preliminary risk assessment will use existing analytical data that may not meet Level III DQOs. This will be noted in reporting the results.

Step 5. Provide an executive summary of the investigation and preliminary risk assessment results to the Vollintine-Evergreen Community Association (VECA), the City of Memphis and local regulatory agencies.

Step 6. The investigation may or may not indicate significant human health risk. It may also implicate other party's actions and contaminant releases as well as general stormwater runoff from the urban areas as the cause of environmental concerns at Cypress Creek. Therefore, Velsicol can not commit to perform additional Corrective Action Program work related to Cypress Creek at this time. Velsicol will, however, agree to meet with EPA and TDEC and other potentially responsible parties to discuss follow-up actions.



## EPA TRANSMITTAL LETTER

First Paragraph. Comment regarding "The Workplan has been conditionally approved for immediate implementation contingent upon incorporation of the enclosed comments and recommendations."

Response: The revised Work Plan will be implemented following Agency approval of this response and according to the revised schedule, as shown on the enclosed *Revised Figure 5*.

Second Paragraph. EPA's major concern reflects the need to increase the scope of sampling and provide sufficient screening data to satisfy Region 4 Data Quality Objectives (DQO) for appropriate human and ecological screening-level risk assessments. By incorporating these DQO parameters early into the decision-making process, VCC and the Agencies can communicate to the public a clear rationale for human and ecological risk management actions.

Response: Velsicol proposes to use the same Level III DQO's, as presented in the Agency-approved SAP for the Corrective Action Program. This will make the data quality equivalent to the other similar data developed under the RCRA Corrective Action Program. Since the Tennessee Water Quality Control Board declared Cypress Creek to be a stormwater channel and not a stream in 1977, Velsicol does not believe that an ecological risk assessment is necessary. Also see Velsicol's response to the First Paragraph of EPA Attachment A.

Third Paragraph. Although some data was omitted, the Agencies are pleased with VCC's efforts to compile and summarize historic Cypress Creek soil and sediment data collected by EPA, TDEC and Shelby County Health Department from 1964 to 1993. This information coupled with VCC's expanded off-site investigation of nearby drainage ditches and downstream portions of Cypress Creek is critical to meeting our mutual commitments regarding the "Good Neighbor Contingency Plan" to notify, inform and potentially assist municipal and industrial neighbors regarding contaminant exposure along Cypress Creek.

Response: Acknowledged. Also see Velsicol's response to the Third Paragraph of EPA Attachment A.

Fourth Paragraph. We also request that VCC develop and mail a follow-up brochure similar to the excellent "VCC- Offsite Soil & Sediment Contamination Information" brochure initially mailed on February 11, 2000. Since the Agencies have immediate concerns regarding pesticide contaminant redeposition and human exposure during potential "community stream restoration projects and voluntary beautification programs" along Cypress Creek, this updated brochure should include at a minimum:

1. a summary of recent results and an updated map of the completed off-site investigation;
2. a progress report regarding preliminary risk assessment evaluations for multiple human and ecological exposure pathways, and;
3. a discussion of appropriate health and safety protocols for stream restoration projects.
4. possible assistance to the City of Memphis to remove contamination and minimize redeposition of contaminated sediments at Cypress Creek surge basin.

Response:

- 1 and 2. The results of the investigation and preliminary risk assessment will be presented as an Executive Summary, which can be published in brochure format.
- 3. Velsicol cannot advise other parties on their health and safety protocols. The executive summary will recommend that any parties potentially impacted by the soil and sediment implement their own health and safety protocols as developed by competent professionals.
- 4. Velsicol's assistance to the City of Memphis will consist of providing the investigation results and answering questions related to chemicals manufactured by Velsicol. Velsicol has not been involved with the City's management of Cypress Creek and the Surge Basin in the past. In regards to future management of surge basin sediments, Velsicol feels that it is more appropriate to address this issue after completion of the IPRA Report.

Fifth Paragraph. Regarding another topic: several months ago, in a letter dated December 17, 1999 (Kumar to Akins, Joint Conditional Approval of Four VCC RFI/CMS Workplans), we indicated that EPA had tentatively targeted the VCC- Memphis facility for satisfying the GPRA Environmental Indicators (CA725 and CA750) within the next two years (FY 2000 and FY 2001). You were also asked to review your corrective action budget and schedule (5-Year Plan) and notify EPA if these tentative dates are mutually achievable. EPA has not yet received your response to this request.

Response: Velsicol believes that we and the Agencies should first determine the current site conditions relative to GPRA goals, before establishing a schedule to achieve YE status. In early 2000, Velsicol agreed to EPA's request to update the Environmental Indicators (EI) Determination. This update was submitted to Mr. Romanowski of EPA on August 7, 2000. Our update indicates that the site is at IN status (i.e., more information is needed to make a determination) for both the CA725 and CA750 Codes. Upon the Agencies and Velsicol's agreement on an updated EI Determination, Velsicol would like to work with the Agencies to establish a schedule to achieve GPRA goals.

## EPA ATTACHMENT A

### GENERAL COMMENTS

First Paragraph. VCC is strongly encouraged to expand the number of sampling locations/transects to verify previous historical data. Since a Human Health and a Ecological Risk Assessment will likely be required for Cypress Creek, VCC should begin following a Data Quality Objective (DQO) Process to be certain that sufficient sample type, quantity and quality of data are collected to simplify appropriate risk-management decision making. For example, sample transects must also include shallow soil sampling at 6-12" depth. Please refer to EPA Region 4 Web site for Region 4 Supplemental Guidance to Risk Assessment Guidance for Superfund (RAGS) for assistance in understanding the data needs for a Preliminary Risk Assessment, ([www.epa.gov/region4/waste/oftecs/otsguid](http://www.epa.gov/region4/waste/oftecs/otsguid)).

Response: See General Response and Proposed Work Plan Approach for a discussion of the expansion of sampling locations/transects, sample collection and data management approach.

The May 17, 1977 Declaratory Ruling (Declaratory Ruling) by the Tennessee Water Quality Board stated that Cypress Creek is not a stream and that Rule 1200-4-4-.01-(1), is not applicable to such storm water channel. This indicates that Cypress Creek is not classified for fish and aquatic life, recreation, irrigation, livestock watering and wildlife. Under these conditions Velsicol does not see the basis for performing an Ecological Risk Assessment.

Second Paragraph. EPA has particular concerns with the historically documented elevated (average) levels of dieldrin, benzopyrene and benzo (a) pyrene measured along Cypress Creek which exceed the industrial human health RBCs for soils by 137, 9 and 5- fold. Additionally, the Region 4 Sediment Screening Values for ecological risk are exceeded for about five (5) pesticides and at least eleven (11) SVOCs. Thus, VCC should begin accumulating appropriate data with sufficient QA/QC and begin developing a Preliminary Risk Assessment for Cypress Creek. Of course, a complete risk assessment for Cypress Creek must also address the many other pesticides, metals and SVOCs which exceed the residential as well as the industrial human health RBCs.

Response: See General Response and Proposed Work Plan Approach for a discussion of the approach for data management and risk assessment. As noted in that section, a preliminary human risk assessment will be performed using available data and the data collected during the investigation.

Third Paragraph. Table 1 and Figure 2 did not include all the sampling summaries provided by the Agencies per our October 4, 1999 meeting (TDEC, TDSF, City of Memphis, MEC, VCC and EPA) at VCC, Memphis. Table 1 should also include the soil analyses adjacent to and along Cypress Creek as well as the sediment analyses. For completeness, Figure 2 should also include sediment data from Wolf River - Cypress Creek intersection (i.e., sediment samples CC-SD-01 and -02).

Response: The scope of the investigations and IPRA Report is being expanded to include historic sediment data from the Wolf River near the confluence of Cypress Creek (CC-SD-01 and CC-SD-02), and the additional overbank surface soil sample locations depicted on *Revised Figure 2*. A more complete sampling summary, including appropriate historic soil and sediment data, will be included in the PIRA Report. *Table 1* of the Work Plan focused on Cypress Creek channel sediment data, whereas the PIRA will also include historic overbank data. More extensive information like that presented in Work Plan *Table 1* will be presented in the PIRA Report, as appropriate.

## SPECIFIC COMMENTS

Comment 1. Although mentioned several times as the geographical limit for the concrete-lined portion of Cypress Creek, Evergreen Street (bridge) is not labeled on the Cypress Creek Site Vicinity Map of Figure 1. Revise the Figure 1 map to indicate Evergreen Street. Also, indicate and label the plant boundaries of the Velsicol facility and all of the concrete-lined portions of Cypress Creek.

Response: Velsicol's intent for *Figure 1* is to show a small scale sub-regional overview of the location of the study area. *Figures 2 and 3* identify Evergreen Street and the Velsicol plant boundaries. The enclosed *revised Figure 2* has been modified to show the concrete-lined portions of Cypress Creek along with the additional sampling points.

Comment 2. Indicate the sections of Cypress Creek which were actually designated in 1977 by the Tennessee Water Quality Board as a storm channel and exempt from stream protection. Does this declaration include the unlined and natural portions of Cypress Creek (i.e. green-ways or park ways) from the Evergreen Street Bridge to the Wolf River? Does this declaration also imply that aquatic life, fish, ecological stream conditions are exempt from environmental protection by the State of Tennessee? This designation is critical to the risk assessment present and future use scenarios, institutional controls and comparison of contaminant levels to the Agencies action levels (residential or industrial Risk-Based Concentrations- RBCs and ecological screening values). Please explain. Also, provide a copy of this specific Cypress Creek declaration by the Tennessee Water Quality Board.

Response (in order to the questions posed):

- The Declaratory Ruling applies to the entire Cypress Creek tributary to the Wolf River at mile 2.8 in the Memphis Area Basin. The Ruling states: " the storm water drainage channel designated "Cypress Creek", which is a tributary to the Wolf River at Mile 2.8 in the Memphis Area Basin, is not a stream".
- Since the Declaratory Ruling applies to the entire tributary it includes the unlined and natural reaches downstream of Evergreen Street.
- The May 17, 1977 Declaratory Ruling (Declaratory Ruling) by the Tennessee Water Quality Board stated that Cypress Creek is not a stream and that Rule 1200-4-4-.01-(1), is not applicable to such storm water channel. Rule 1200-4-4-.01(1) Memphis Area Basin, October 1999 (Revised) does not list the subject Cypress Creek as a water of the State. Therefore this Rule does not apply to Cypress Creek.
- A copy of the 1977 Declaratory Ruling and a copy of Rule 1200-4-4-.01(1) Memphis Area Basin, October 1999 (Revised), are attached.

**Comment 3.** Please clarify the dates of Velsicol wastewater discharge into Cypress Creek. EPA references indicates that Velsicol was releasing process wastewater into Cypress Creek prior to June 1963. However, in the 3<sup>rd</sup> paragraph, Velsicol states that process wastewater was directed to the City of Memphis North Treatment System in the late 1950's. This implies that VCC stopped discharging industrial wastewater into Cypress Creek about 4-6 years earlier than our EPA records indicate.

Response: The noted 3<sup>rd</sup> paragraph stated: "Prior to the construction of the City of Memphis' North Treatment System in the late 1950s, ...". This was incorrect and should have stated that "Prior to the construction of the City of Memphis' Wastewater Collection System (Wolf River Interceptor) in the late 1950s, ...."

Velsicol has been unable to determine exactly when discharges of process water to Cypress Creek ended. However, records do clearly indicate that by the summer of 1964 Velsicol had for some time been discharging process wastewaters into the underground sewer system that flows north to the Wolf River Interceptor. This closely corresponds to EPA's referenced date of June 1963.

**Comment 4.** Discuss and explain the chronology (include a table, time-line or chart) of when Velsicol ceased discharging process wastewater and stormwater into Cypress Creek. Indicate the years of pesticide manufacture (for each specific pesticide), operation and closure dates of process wastewater treatment ponds and lagoons (i.e., SWMUs 31 and 51), dates of industrial and chemical sewer operation and major sewer upgrades, and dates of initial NPDES permit discharges to both Cypress Creek and to the City of Memphis treatment plants (South plant and/or North plant).

Response: Following are general responses to the questions. Velsicol does not believe that the extensive research, which would be required to fully answer every question, is necessary to complete and implement the Work Plan. If additional information is discovered during the investigation it will be included in the IPRA Report as necessary and appropriate to achieve project objectives.

- **Chronology.** Generally, plant process wastewater and stormwater were discharged to Cypress Creek prior to the construction of the Memphis Wastewater Collection System (Wolf River Interceptor) in the late-1950's. From about 1963 to the mid-1970's stormwater, and possibly non-contact process water, continued to be discharged to Cypress Creek. From the mid-1970's to the present time, only stormwater has been discharged to Cypress Creek.
- **Years of Pesticide Manufacture.** See Operation History Section from the Phase I RCRA Facility Investigation Report, April 1994.
- **Process Wastewater Treatment Ponds and Lagoons.** See Phase I RCRA Facility Investigation Report, April 1994, and DNAPL Assessment and Stabilization Option Selection Report, June 1995.

- Industrial and Chemical Sewer. See response to Comment 3 and the first response to this comment.
- Major Sewer Upgrades. Records of sewer work prior to the early 1960's are not readily available.
- NPDES Permits. On June 28, 1974 Velsicol was issued a NPDES Permit (TN0000051) for discharge to Cypress Creek and to the City of Memphis Wastewater Collection System.

Comment 5. The analytical data from the TDOT excavation at the Jackson Street viaduct project over Cypress Creek were discussed in the 3<sup>rd</sup> paragraph. However, none of this data was included in the Table 1 Summary or shown on Figure 2 - Previous/proposed Sampling Locations for Cypress Creek. Please revise and include this data in Table 1 and Figure 2.

Response: The analytical data addressed by this comment is from the following document: *Hazardous Material Phase IV Preliminary Remediation Report*, by TVG Environmental, Inc. for the Tennessee Department of Transportation, dated October 22, 1997. The only locations where TVG's soil sample analyses detected Velsicol-related contaminants were adjacent to the plant's underground stormwater sewer outfall, approximately 600 feet from its discharge point to Cypress Creek. This data was not included in the Work Plan because it is indicative of soil conditions near the underground sewer pipeline, rather than the soil and sediment quality along Cypress Creek.

Comment 6. All appropriate historical analytical data previously provided by the Agencies (EPA/TDEC/MSCHD) should have been tabulated and summarized to obtain a more complete representation of the historical extent of pesticide contamination along the Cypress Creek waterway. These data should also include the soil analyses adjacent to and along Cypress Creek as well as the sediment analyses at the Wolf River (i.e., CC-SD-01, CC-SD-02). Why were numerous soil analyses excluded from Table 1 and Figure 2? As you know, the City of Memphis routinely excavates the Cypress Creek flood channel within the surge basin upstream of the Wolf River pumping station and spreads the removed sediments over the creek banks. Thus, it is likely that the contaminant levels in the present soil originated from and represent the historic contaminant levels in the creek sediments. Please revise and include all appropriate soil data.

Response: See response to the Third Paragraph. General Comments. EPA Attachment A.

Comment 7. Also, discuss VCC actions for providing more appropriate assistance to the City of Memphis to analyze and remove pesticide contamination and minimize future redeposition of sediment contamination within the Cypress Creek surge basin. Discuss options for the proper disposition of these dredged sediments such as Subtitle C or D landfill and a future CAMU at VCC.

- Response: Velsicol's assistance to the City of Memphis will consist of providing the investigation results and answering questions on the characteristics of chemicals manufactured by Velsicol. Velsicol has not been involved with the City's management of Cypress Creek and the Surge Basin in the past. In regards to future management of surge basin sediments, Velsicol feels that it is more appropriate to address this issue after completion of the IPRA Report.

Comment 8. Please add "text boxes" to Figure 2 to detail the pesticide concentrations and depth for all previous and new sample locations. VCC has successfully used these text boxes in previous reports.

Response: The data will be presented in a clear, understandable manner in the IPRA Report and may include "text boxes", as appropriate and as space permits. A more complete presentation of the data is more appropriate to include in the IPRA Report, rather than in the Work Plan.

Comment 9. To simplify future risk management discussions, also include the appropriate EPA action levels for soil and sediments for all of the detected constituents in the Table 1- "Summary of Historical (Soil and) Sediment Analyses - Cypress Creek." Highlight in bold print all measured contaminant concentrations which exceed the action levels. As Velsicol is aware, these action levels include the EPA Region 3 RBCs (risk-based concentrations) for soils in both residential and industrial scenarios and the Region 4 Sediment Screening Values. The Sediment Screening Values are contained in the Region 4 Supplemental Guidance to Risk Assessment Guidance for Superfund (RAGS) under Ecological Risk Assessment Bulletins (Table 3) which can be accessed at [www.epa.gov/region4/waste/oftecser/otsguid.htm](http://www.epa.gov/region4/waste/oftecser/otsguid.htm)

Response: It is acknowledged that existing analytical data indicates that some locations exceed RBCs and/or Sediment Screening Values. The investigations and IPRA Report will include a comparison of the historic and newly developed soil and sediment concentration levels to Region 9 PRGs, calculated screening criteria and Region 4 Sediment Screening Values. Therefore, Velsicol does not believe that the requested data/criteria comparison on a revised *Table 1* (in essence a preliminary risk assessment) is a necessary element of the Work Plan.

Comment 10. Also, provide a table listing the anticipated, historical or documented half-lives for the contaminants of concern. This information will be useful in recognizing time trends in probable natural degradation of the contaminants along Cypress Creek.

Response: An attempt will be made to provide and use the requested information as appropriate to perform the evaluations and to prepare the IPRA Report.



Comment 11. Assuming the historical data (1964 to 1993) was of appropriate QA/QC status, did VCC recognize any historical trends (spatial and temporal) in pesticide concentrations along Cypress Creek? How has the measured pesticide concentrations along Cypress Creek varied over the past 20-30 years of intermittent analysis? Please explain.

Response: Velsicol did not analyze spatial or temporal trends in developing the Work Plan. An attempt will be made to evaluate these trends in pesticide concentrations in preparing the IPRA Report.

Comment 12. Revise the objectives, schedule and Figure 5 of this Cypress Creek Investigation to include data accumulation for a Preliminary Risk Assessment. We recommend that a separate section be created to discuss the basics of the Preliminary Risk Assessment for both the human health and ecological components.

Response: See General Response and Proposed Work Plan Approach for a discussion of the approach for data collection, management and Risk Assessment. As noted in that section, a Preliminary Human Health Risk Assessment will be performed using the available data and the data collected during the investigation.

*Figure 5*, the project schedule, has been revised to include the Risk Assessment and is attached.

Comment 13. Please label "Scott Street" on Figure 2.

Response: Scott Street has been labeled on *Revised Figure 2*.

Comment 14. Increase the scope of work to include adequate data collection to support the DQO's for a Preliminary Risk Assessment. This should include between 12 and 24 additional shallow soil samples at depths of 6-12 inches along banks of Cypress Creek. EPA suggests at least six (6) additional shallow soil sampling sites be proposed between Springdale Street Baptist Church, Cypress Creek Junior High School and University Blvd. Please revise text and Figure 2.

Response: See General Response and Proposed Work Plan Approach for a discussion of the expansion of sampling locations/transects and sample collection. *Revised Figures 2 and 4* show the additional sampling locations.

Comment 15. Because of potential exposure during stream restoration and pesticide redistribution concerns during sediment dredging in the City of Memphis Surge Basin, EPA also suggests at least four (4) additional transects (stream sediment plus two shallow

bank soils samples per transect) in the unlined creek portion between Evergreen Street and the Cypress Creek Surge Basin. Please revise text and Figure 2.

Response: See General Response and Proposed Work Plan Approach for a discussion of the expansion of sampling locations. Significant investigation in this area (both sediments and soil) has been conducted in the past, (see *Revised Figure 2*) such that Velsicol does not believe additional sampling is necessary for the current investigation and Preliminary Risk Assessment. This existing data and its evaluation will be included in the IPRA Report.

TENNESSEE DIVISION OF SUPERFUND, MEMPHIS ENVIRONMENTAL  
ASSISTANCE CENTER, LETTER DATED MARCH 16, 2000

Comment 1. A map that shows the total lined reach of Cypress Creek would be helpful.

Response: *Revised Figure 2* indicates the extent of the lined portion of Cypress Creek within the study area. The portion upstream (generally southeast) of the Evergreen Street Bridge is concrete lined to the Creek's origin at a culvert beneath Carnes Avenue.

Comment 2. The description of the Creek on page 1, line 1 as "... concrete lined sewer..." is perhaps a bit negative. "Storm water channel..." as described in paragraph two seems more appropriate.

Response: Comment noted.

Comment 3. TDSF, EAC-M does not understand the need for sampling beneath the concrete channel. Unless contaminant mobility is the issue, these contaminants appear to be adequately shielded from all other potential receptors.

Response: EPA has told Velsicol that sampling beneath the concrete liner should be maintained in the Work Plan to evaluate potential spatial trends.

Comment 4. TDSF, EAC-M would prefer to bias locate sample points along the Creek that correspond to areas appearing to have potential for relatively undiluted spoils.

Response: An extensive effort was made to identify these locations during preparation of the Work Plan. That attempt was unsuccessful as discussed in the Work Plan.

Comment 5. At least some sample points should be located on the inside bank of meanders where maximum deposition would be expected to occur.

Response: At sampling locations where meanders exist the creek bottom sample point will be biased toward the inside bank of the meander.

Comment 6. Samples should be collected from beneath the root zone structure of grass and short vegetation down to about 1 foot. This zone is most likely to be contacted by residents.

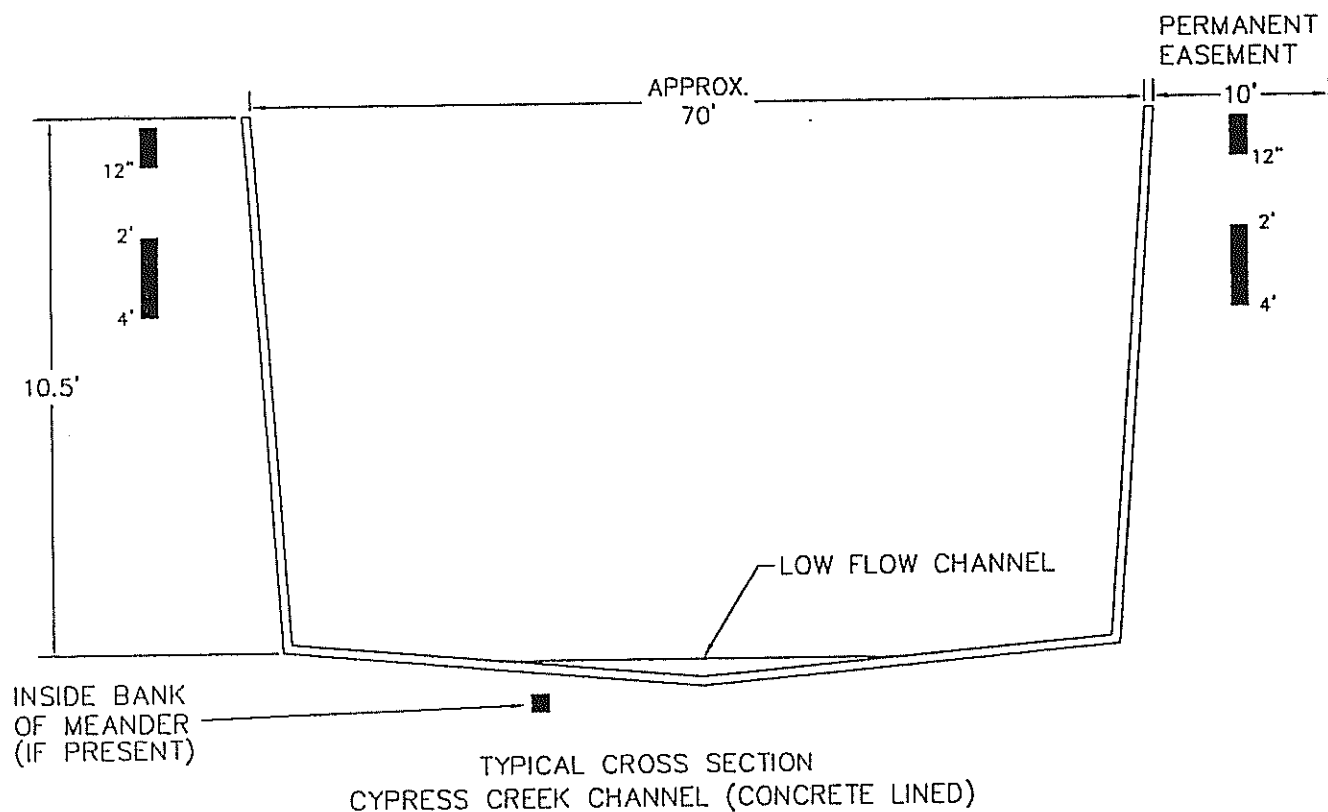
Response: The surficial samples will be collected from the (bare) soil surface, or from beneath the root zone structure of grassed areas, down to about 12 inches deep.

*Revised Figure 2*

Previous Sampling Locations  
And Proposed Sampling Locations  
Cypress Creek

*Revised Figure 4*

Transect Sample Location  
Cypress Creek



■ SAMPLE INTERVAL

NOT TO SCALE

VESICOL CHEMICAL CORPORATION  
MEMPHIS, TENNESSEE

**LAW**  
LAWGIBB Group Member

TRANSECT SAMPLE LOCATION  
CYPRESS CREEK  
REVISED AUGUST 2000

JOB NO. 12000-9-0035

FIGURE 4

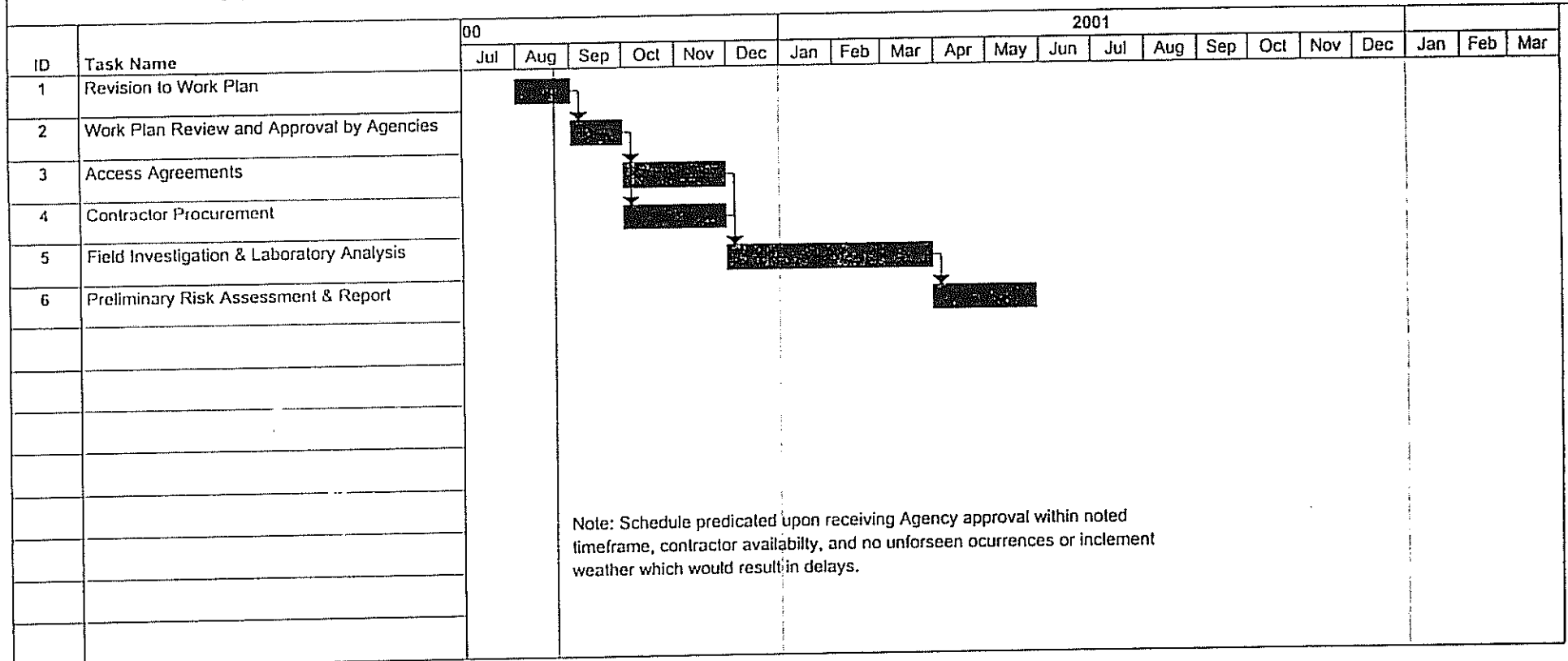
PREPARED BY/DATE *C. Reagan 8/23/00*  
CHECKED BY/DATE *T. M. Lewis 8/23/00*

*Revised Figure 5*

Investigation Schedule

FIGURE 5 (REVISION 1)

# SOIL & SEDIMENT CONTAMINATION ALONG CYPRESS CREEK INVESTIGATION SCHEDULE





May 17, 1977 Tennessee Water Quality Board Declaratory Ruling

And

Rule 1200-4-4-.01 (1) Memphis Area Basin October 1999 (Revised)

THE TENNESSEE WATER QUALITY CONTROL BOARD

IN RE

VELSICOL CHEMICAL CORPORATION,  
Memphis, Shelby County  
Tennessee

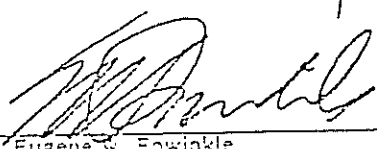
Davidson County, Tennessee  
File No. -

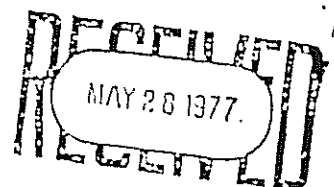
DECLARATORY RULING

This matter came on for hearing on the 26th day of April, 1977, before the Tennessee Water Quality Control Board at the regularly scheduled meeting thereof on a petition for declaratory ruling filed by Velsicol Chemical Corporation. Upon proof introduced in open hearing, and it appearing that the storm water drainage channel designated "Cypress Creek" which is tributary to the Wolf River at Mile 2.8 in the Memphis Area Basin is not a stream and that Rule 1200-4-4-.01-(1), Tennessee Department of Public Health, Bureau of Environmental Health Services, Division of Water Quality Control is not applicable to such storm water channel, it is therefore, by the Board,

FOUND and DETERMINED that Rule 1200-4-4-.01-(1), Tennessee Department of Public Health, Bureau of Environmental Health Services, Division of Water Quality Control is not applicable to the storm water drainage channel (in the Memphis Area Basin) designated "Cypress Creek" which is tributary to the Wolf River at Mile 2.8, said storm water drainage channel not being a stream.

This FINDING having been made by the Board in open hearing held upon the 26th day of April, 1977, is entered this 17th day of May, 1977, NUNC PRO TUNC.

  
Dr. Eugene W. Fowinkle  
Chairman



**RULES  
OF  
TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION  
DIVISION OF WATER POLLUTION CONTROL  
AMENDMENTS**

**CHAPTER 1200-4-4  
USE CLASSIFICATIONS FOR SURFACE WATERS**

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1200-4-4-.01	Memphis Area Basin	1200-4-4-.08	Upper Tennessee River Basin
1200-4-4-.02	Hatchie River Basin	1200-4-4-.09	Clinch River Basin
1200-4-4-.03	Obion-Forked Deer Basin	1200-4-4-.10	French Broad River Basin
1200-4-4-.04	Tennessee River Basin	1200-4-4-.11	Holston River Basin
	Western Valley	1200-4-4-.12	Lower Cumberland River Basin
1200-4-4-.05	Duck River Basin	1200-4-4-.13	Upper Cumberland River Basin
1200-4-4-.06	Elk River Basin		
	(including Shoal Creek)		
1200-4-4-.07	Lower Tennessee River Basin		
	(including Conasauga Basin)		

## 1200-4-4.01 MEMPHIS AREA BASIN

STREAM	DESCRIPTION	DOMESTIC WATER SUPPLY	INDUST. WATER SUPPLY	FISH & AQUATIC LIFE	RECRE- ATION	IRRIG- ATION	LIVESTOCK WATERING & WILDLIFE	NAVIG- ATION	TROUT STREAM	NATURALLY REPRODUCING TROUT STREAM
Mississippi River	Mississippi-Tennessee State Line (Mile 714.0) to Upstream End of Loosahatchie Bar (Mile 741.0)		X	X	X	X	X	X		
McKellar Lake	Mouth on Mississippi R. to Origin		X	X	X			X		
Nonconnah Creek	Mile 0.0 to 16.2 (Winchester Rd.)			X	X	X	X			
Nonconnah Creek	Mile 16.2 to Origin			X	X	X	X			
Wolf River	Mile 0.0 to 6.7 (L & N Railroad Bridge)			X	X	X	X			
Wolf River	Mile 6.7 to Miss.-TN State Line (Mile 77.0)	X	X	X	X	X	X			
Loosahatchie River	Mile 0.0. to 20.9 (Austin Peay Hwy Bridge)			X	X	X	X			
Big Creek	Mile 0.0 to 4.2			X	X	X	X			
Big Creek	Mile 4.2 to 12.7			X	X	X	X			
North Fork Creek	Mile 0.0 to Origin			X	X	X	X			
Big Creek	Mile 12.7 to Origin			X	X	X	X			
Crooked Creek	Mile 0.0 to Origin			X	X	X	X			
Trib. to Mile 3.0 of Crooked Creek	Mile 0.0 to 2.3			X	X	X	X			
Trib. to Mile 3.0 of Crooked Creek	Mile 2.3 to Origin			X	X	X	X			
Loosahatchie River	Mile 20.9 (Austin Peay Hwy) to 30.7			X	X	X	X			
Clear Creek Canal	Mile 0.0 to 1.6			X	X	X	X			
Clear Creek Canal	Mile 1.6 to Origin at Mile 2.6 (Confluence of Hall Creek and Cypress Creek Canal)			X	X	X	X			
Cypress Creek Canal	Mile 0.0 to Origin			X	X	X	X			
Loosahatchie River	Mile 30.7 to 45.5			X	X	X	X			
Middle Beaver Creek	Mile 0.0 to Origin			X	X	X	X			
West Beaver Creek	Mile 0.0 to Origin			X	X	X	X			
East Beaver Creek	Mile 0.0 to 3.8			X	X	X	X			
East Beaver Creek	Mile 3.8 to 6.8			X	X	X	X			
East Beaver Creek	Mile 6.8 to Origin			X	X	X	X			
Little Cypress Creek Canal	Mile 0.0 to 1.2			X	X	X	X			
Little Cypress Creek Canal	Mile 1.2 to Origin			X	X	X	X			
Loosahatchie River	Mile 45.5 to 50.2			X	X	X	X			
Davis Creek	Mile 0.0 to Origin			X	X	X	X			
Town Branch	Mile 0.0 to 1.6			X	X	X	X			
Town Branch	Mile 1.6 to Origin			X	X	X	X			
Loosahatchie River	Mile 50.2 to Origin			X	X	X	X			

All other surface waters named and unnamed in the Memphis Area Basin, with the exception of wet

**Authority:** T.C.A. 554-5-201, et seq., and 569-3-105. **Administrative History:** Original rule certified June 7, 1974. Amendment filed December 1, 1975; effective December 30, 1975. Amendment filed November 25, 1977; effective December 26, 1977. Amendment filed March 30, 1983; effective April 29, 1983. Amendment filed July 16, 1991; effective August 30, 1991. Amendment filed May 16, 1995; effective July 30, 1995. Amendment filed July 13, 1999; effective October 11, 1999.

weather conveyances, which have not been specifically noted shall be classified

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 4  
ATLANTA FEDERAL CENTER  
61 FORSYTH STREET  
ATLANTA, GEORGIA 30303-8960

FILE COPY

DEC 14 2000

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4WD-RPB

DEC 18 2000

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

Ms. Glenda Akins, Plant Manager  
Velsicol Chemical Corporation  
1199 Warford Street  
Memphis, TN 38108-0127

SUBJ: **Joint Conditional Approval** — RTC for revised RFI Workplan for Off-Site Investigation of Soil and Sediment Contamination along Cypress Creek  
Velsicol Chemical Corporation (VCC), Memphis, Tennessee  
EPA ID No. TND 007 024 664

Dear Ms. Akins:

The Environmental Protection Agency (EPA) and the Tennessee Department of Environment and Conservation (TDEC) have reviewed the Response to Comments and the proposed workplan approach (dated September 5, 2000). Memphis Environmental Center, Inc., on behalf of the Velsicol Chemical Corporation (VCC), Memphis, Tennessee submitted these responses and revisions to address the Agency's Joint Conditional Approval letter (dated July 31, 2000) for the RFI Workplan (dated December 29, 1999) for Investigation of Soil and Sediment Contamination along Cypress Creek.

As you are aware, EPA's major concern with the initial RFI Workplan was a lack of sufficient screening data to support appropriate and necessary human and ecological screening-level risk assessments. Based upon our current review, VCC now proposes to increase the surficial soil sampling by almost 50% (20 to 38 samples), utilize all historic sediment data from EPA Superfund, evaluate spatial or temporal trends in pesticide concentrations, and has agreed to expand the investigation to include a preliminary human health assessment. With one exception (addressed below), the Agencies are pleased with VCC's efforts toward meeting our mutual GPRA commitments as well as the "Good Neighbor Contingency Plan" to notify, inform and potentially assist the Vollintine-Evergreen Community Association (VECA) and other municipal and industrial neighbors regarding contaminant exposure along Cypress Creek. EPA has tentatively targeted the VCC- Memphis facility for satisfying the GPRA Environmental Indicators (CA725 and CA750) within the next two years (FY 2001- 2002).

EPA understands that VCC disagrees with the Agency's recommendation to also implement a preliminary ecological risk assessment. EPA recommendations are based on habitat concerns for the numerous migratory waterfowl, turtles, minnows, etc. which were personally observed on May 11, 2000, living in the unlined and natural portions of Cypress Creek (i.e. green-ways or park ways) from the Evergreen Street Bridge to the Wolf River. As VCC has documented in the proposed RFI Workplan, elevated (average) levels of dieldrin, benzopyrene and benzo (a) pyrene have been historically measured along Cypress Creek by several regulatory agencies. Individually, these three hazardous constituents exceed the industrial human health RBCs for soils by 137, 9 and 5- fold. EPA has particular concerns with the cumulative effects of these hazardous constituents, as well as the ecological effects of about five (5) pesticides and at least eleven (11) SVOCs which also exceed the Region 4 Sediment Screening Values for ecological risk.

Based on a 23-year-old Declaratory Ruling, VCC does not believe that an ecological risk assessment is necessary. Specifically, in May 17, 1977, the Tennessee Water Quality Control Board acting on a petition submitted by VCC, declared Cypress Creek to be a stormwater channel and not a stream and that Rule 1200-4-4-.01-(1) is not applicable. This 1977-Declaratory Ruling implies that all of Cypress Creek (both unlined and cement-lined sections) is no longer classified for fish and aquatic life, recreation, irrigation, livestock watering and wildlife.

However, the Agency's do not believe that the 1977-Declaratory Ruling is still valid. Fortunately for the Memphis area, environmental conditions within Cypress Creek have improved since 1977. In fact, the Tennessee water quality standards were revised in the 1980's and new definitions and use classifications were officially promulgated through the rulemaking process. Thus, it appears that the 1977 Declaratory Ruling has been superceded. Since these rules are subsequently reevaluated every three years in a triennial review process, the decision to change the Cypress Creek classification has been reaffirmed numerous times without objection from VCC. (See Enclosure A - correspondence dated October 16, 2000, G. Denton, TDEC to L. Romanowski, EPA). Current water quality assessment reports developed by the Tennessee Division of Water Pollution Control now identify Cypress Creek as a stream which presently does not meet state water quality standards. As such, Cypress Creek was and is now classified in Rule 1200-4-4-.01-(1) under the provision for "all other surface waters named or unnamed ..." for the protection of fish and aquatic life, recreation, irrigation, and livestock watering and wildlife. Thus, until VCC successfully challenges, in a public forum, the State of Tennessee's current classification of Cypress Creek as a stream, EPA expects VCC to develop and implement a Preliminary Ecological Risk Assessment for the unlined and natural portions of Cypress Creek.

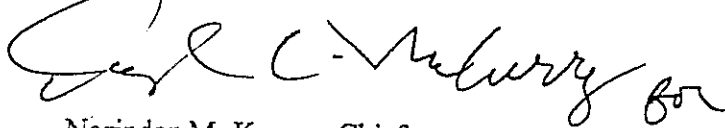
For assistance in understanding the data needs for a Preliminary Risk Assessment, both for human health and for ecological situations, please refer to EPA Region 4 Web site for Region 4 Supplemental Guidance to Risk Assessment Guidance for Superfund (RAGS) ([www.epa.gov/region4/waste/ofccs/otsguid](http://www.epa.gov/region4/waste/ofccs/otsguid)).

In conclusion, this revised RFI Workplan has been **conditionally approved for immediate implementation**. However, the Agency's request that VCC submit responses,

clarifications and possible resolution of the disputed issue (regarding the current Cypress Creek "stream" classification by the State of Tennessee and the ecological risk assessment) no later than thirty (30) calendar days from receipt of this letter. Include copies to both EPA and TDEC as well as within the Final RFI Report.

If there are any questions regarding this matter, please contact Leo J. Romanowski, Jr., Corrective Action Specialist, of the RCRA Programs Branch at (404) 562-8485 and Christopher Schaefer of TDEC at (615) 532-0856.

Sincerely yours,



Narindar M. Kumar, Chief  
RCRA Programs Branch  
Waste Management Division

Enclosure: A. Correspondence dated October 16, 2000 (G. Denton, TDEC to L. Romanowski, EPA), 5 pages

cc w/encl: Mike Apple, TDEC - Nashville, TN  
Gary Hermann, Memphis Environmental Center (MEC), Inc.  
Paul Patterson, DPW, City of Memphis, TN  
Jordan English, TDSF - Memphis, TN  
Beth Brown-Walden, WMD, EPA R4

(Enclosure A)



STATE OF TENNESSEE  
DEPARTMENT OF ENVIRONMENT AND CONSERVATION

October 16, 2000

Mr. Leo Romanowski  
USEPA Region IV  
61 Forsyth St.  
Atlanta, GA 30303

Dear Mr. Romanowski:

I enjoyed our phone conversation several weeks ago on the subject of stream-use classifications in the Memphis area. Due to continuing questions about Cypress Creek, I would like to more formally document the Division of Water Pollution Control's position concerning this waterbody and perhaps provide a historical context for the larger issue of how the water quality goal setting process has evolved in the last twenty-five years.

Please note that I have only been directly involved with water quality standards since 1988 and that some of the events described pre-date my tenure with the Division. The historical information presented below was primarily obtained from the files of the Water Quality Control Board.

### Historical Context

The Tennessee Water Quality Control Act was signed into law in 1971 and actually predated the 1972 federal Clean Water Act. Much of the 1970's were spent by the then Division of Water Quality Control in the activities that created the foundation of the modern program: classifying streams, creating clean water goals, developing "basin plans", and establishing a permitting system for point source discharges. Board meetings were frequently dominated by cases involving "wildcat" coal mining activities. Water quality criteria were primarily narrative in nature and stream classification occurred primarily in streams where point sources dischargers were located. In 1976 and 1977, basin plans began to more comprehensively and uniformly address designated uses.

The early Water Quality Control Board appeared to have a much different definition of what is or is not a stream than is currently found in Tennessee's general water quality criteria. In the 70s, the Board and staff appeared to recognize many different types of streams, including streams that flowed year-round, intermittent streams, urban streams, ephemeral streams, and what they sometimes called "storm water drainage ways". The concept of applying the federal fishable/swimmable goal uniformly had not yet been emphasized by EPA. In fact, it would be 1990 before all streams in Tennessee were classified for both fish and aquatic life protection and recreational use.



### 1977 Action of the Water Quality Control Board

In April of 1977, Velsicol and its consultant approached the Board with a Petition for Declaratory Ruling. The company asked that the Board rule that Cypress Creek in Memphis was not a stream, but rather a stormwater channel. Their argument was based on the following points:

1. That Cypress Creek had been highly altered by hydrologic modifications that included drainage of wetlands, development of the floodplain, culverting, and most significantly, concrete lining of the channel in certain portions.
2. That biological surveys documented very little in the way of aquatic life.
3. That the watercourse functioned primarily as a floodwater drainageway for the city of Memphis.

Following the presentation by Velsicol, Division staff were questioned by Board members. The staff did not oppose the request. Staff's reasoning appears to have been that Cypress Creek was a waterbody that had been so dramatically altered that it had almost no opportunity to regain its natural functions.

The Board voted to issue a Declaratory Ruling that concluded that the general water quality criteria were "not applicable to the storm water drainage channel ... designated "Cypress Creek" ... said storm water drainage channel not being a stream."

The 1977 Declaratory Ruling by the Board, while perhaps reasonable at the time, is significantly different than modern interpretations of state and federal laws and rules. While I do not intend to appear critical, it must be noted that the Board:

- Held that waterbodies should have flow a significant percentage of the time in order to be classified as streams,
- Discounted the possibility of a ground water connection to Cypress Creek simply because of the presence of the concrete liner on some parts of the stream
- Appeared to accept the idea that Cypress Creek was beyond remediation,
- Did not hold a public hearing prior to issuance of the Declaratory Ruling.

The original copy of this document is in the files in Nashville. A copy has been attached.

## The Later Evolution of Stream-Use Classifications

In the mid 1980s, Tennessee developed a state program to regulate activities not covered under NPDES or Section 404. The new program required that activities that alter streams be covered by state permit. As a part of this process, more thought went into the difference between a "stream" and other waters of the state. (The Act defines "waters of the state" and notes that isolated waters on private property such as farm ponds should not be considered state waters.)

The current approach found in regulation establishes that all waters of the state are either "streams" (which can also include lakes or wetlands) or "wet weather conveyances". The general water quality criteria defines a wet weather conveyances [1200-4-3-.04 (4)] as having the following characteristics:

- Flows only in direct response to precipitation,
- Is not connected to groundwater,
- Does not contain aquatic life (interpreted as being benthic invertebrates with an extended aquatic cycle),
- Is not suitable for domestic water supplies.

Sometime in the mid-1980s, the Division reevaluated Cypress Creek and found the modern definition of wet weather conveyance to not apply to the waterbody. The stream flows at times other than directly following precipitation. In fact, the pictures submitted by Velsicol along with their petition, indicated flows.

It should be noted that Velsicol never argued that Cypress Creek was not originally a stream. Their position was based on the idea that Cypress Creek had been altered to the point that it no longer functioned as a stream. Additionally, the lack of aquatic life in Cypress Creek in 1977 may have been related to toxicity, a possibility that does not appear to have been explored.

Because Tennessee's water quality standards were revised in the 1980s and the new definitions and use classifications were promulgated through the rulemaking process, the Board's 1977 Declaratory Ruling was superceded. As you know, those rules are reevaluated every three years in the triennial review process. Thus the decision to change the position has been reaffirmed a number of times.

Throughout the last twenty years and continuing into the present, Division water quality assessment reports have identified Cypress Creek as a stream not meeting water quality standards. In the 1998 303(d) List, Cypress Creek is listed as in need of a TMDL due to various pollutants.

## Summary

Water quality standards are designed to be living documents. Because our knowledge changes frequently, standards are reviewed and revised every three years at a minimum. The current rules and regulations state the current requirements and must be followed both by the Department and the public.

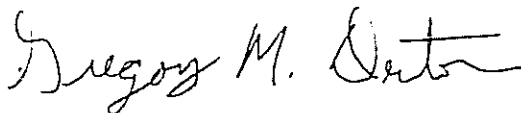
Furthermore, neither the rationale for the Board's 1977 action nor the process followed to reach it are consistent with the standards or the procedures of the program in the last 15 years. It is unlikely that either would be considered acceptable to the public at large or to EPA in the year 2000.

In conclusion, it is the position of the Division of Water Pollution Control that Cypress Creek is a stream and is classified in 1200-4-4-.01 under the provision for "all other surface waters named or unnamed..." As such it is classified for protection of fish and aquatic life, recreation, irrigation, and livestock watering and wildlife.

If it is the desire of Velsicol, they may request that Cypress Creek be reclassified to add or remove classified uses during the next triennial review of water quality standards. They may also comment on the definition of wet weather conveyance found in the regulation. If approved by the Board, these changes would still require EPA approval before they could be fully implemented.

Thank you again for the opportunity to provide this information. If I can be of further assistance, I can be contacted at 615-532-0699.

Sincerely,



Gregory M. Denton, Manager  
Planning and Standards Section

cc: Gary Herman  
Senior Environmental Project Manager  
Memphis Environmental Center  
2603 Corporate Avenue Suite 100  
Memphis, TN 38132

THE TENNESSEE WATER QUALITY CONTROL BOARD

IN RE

VELSICOL CHEMICAL CORPORATION,  
Memphis, Shelby County  
Tennessee

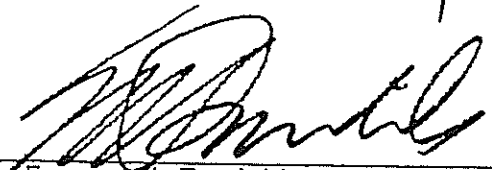
Davidson County, Tennessee  
File No. -

DECLARATORY RULING

This matter came on for hearing on the 26th day of April, 1977, before the Tennessee Water Quality Control Board at the regularly scheduled meeting thereof on a petition for declaratory ruling filed by Velsicol Chemical Corporation. Upon proof introduced in open hearing, and it appearing that the storm water drainage channel designated "Cypress Creek" which is tributary to the Wolf River at Mile 2.8 in the Memphis Area Basin is not a stream and that Rule 1200-4-4-.01-(1), Tennessee Department of Public Health, Bureau of Environmental Health Services, Division of Water Quality Control is not applicable to such storm water channel, it is therefore, by the Board,

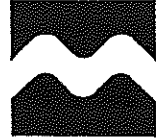
FOUND and DETERMINED that Rule 1200-4-4-.01-(1), Tennessee Department of Public Health, Bureau of Environmental Health Services, Division of Water Quality Control is not applicable to the storm water drainage channel (in the Memphis Area Basin) designated "Cypress Creek" which is tributary to the Wolf River at Mile 2.8, said storm water drainage channel not being a stream.

This FINDING having been made by the Board in open hearing held upon the 26th day of April, 1977, is entered this 17th day of May, 1977, NUNC PRO TUNC.

  
\_\_\_\_\_  
Dr. Eugene W. Fowinkle  
Chairman

**MEMPHIS ENVIRONMENTAL CENTER, INC.**

2603 Corporate Avenue, Suite 100  
Memphis, Tennessee 38132  
Phone: (901) 345-1788 Fax: (901) 398-4719



January 16, 2001

**FILE COPY**

Mr. J. M. Apple, Director  
Tennessee Department of Environment and Conservation  
Division of Solid Waste Management  
401 Church Street  
Nashville, Tennessee 37243-1535

**Re: Response to USEPA and TDEC Comments on the Work Plan for Off-Site Investigation of Soil and Sediment Contamination Along Cypress Creek  
Velsicol Chemical Corporation, Memphis, Tennessee  
Facility Identification No. TND 007-024-664**

Dear Mr. Apple:

On December 18, 2000, Velsicol Chemical Corporation (Velsicol) received United States Environment Protection Agency (USEPA) and Tennessee Department of Environment and Conservation (TDEC) (collectively the Agencies) Joint Conditional Approval for the Revised Work Plan for Off-Site Investigation of Soil and Sediment Contamination Along Cypress Creek, dated September 5, 2000.

The Agencies' Joint Conditional Approval letter dealt with two major topics: 1) Approval of the Revised Work Plan for the soil and sediment contamination investigation and preliminary human health risk assessment, and 2) The need for an ecological risk assessment and the Cypress Creek classification. These topics are addressed separately below.

1) Approval of the Revised Work Plan for Investigation of Soil and Sediment Contamination Along Cypress Creek

The Agencies have conditionally approved the Revised Work Plan for immediate implementation. Toward this end, and in accordance with the schedule provided in the Revised Work Plan, Velsicol has begun work on access agreements, contractor procurement and preparing for a meeting with the Vollintine-Evergreen Community Association.

2) Ecological Risk Assessment and Cypress Creek Classification

As discussed in the Corrective Action Program strategy meeting between TDEC and Velsicol in Nashville on December 15, 2000, the resolution of these issues will require additional time and input from other parties, including the City of Memphis and other industrial dischargers to the Creek.

An Ecological Risk Assessment involves many factors outside of Velsicol's facility and input from a wider variety of parties than those presently involved. The Creek serves as a stormwater collection and conveyance channel for the City of Memphis, it is concrete lined along much of its distance, it drains approximately 10 square miles of urban area, and its last reach serves as a flood control surge basin. Therefore, there are numerous point and non-point source discharges and other conditions unrelated to Velsicol that impact ecological conditions. The related issue of its classification also impacts goals for ecological conditions. Therefore, Velsicol recommends that plans for performing an Ecological Risk Assessment be placed on hold pending resolution of the stream classification issue and until all appropriate parties are brought together to determine the assessment need and methods. It would also be beneficial to wait until the work to be performed under the Revised Work Plan is completed, as those results will also indicate whether or not additional investigation and risk assessment are warranted.

In regard to points raised regarding classification of Cypress Creek, Velsicol continues to hold the position that Cypress Creek has been, and continues to be, classified as a storm water channel.

The April 1977 declaratory ruling by the Tennessee Water Quality Control Board is valid and per Tennessee Code Annotated (TCA) Section 4-5-223(b), it "shall be binding on the agency and the parties .... unless it is altered or set aside by the agency or a court in a proper proceeding." Since Velsicol has not been made a party to a court proceeding to change the Board's classification of Cypress Creek, the only issue seems to be whether the Board has properly undertaken rulemaking since April 1977 that would legally rescind that order.

Before reclassifying waters of the state by the rulemaking process, the Board is required to conduct public hearings and to give at least 30 days public notice of such hearings. Thus it is clear that the Board would had to have given at least a general public notice of any proposal to reclassify Cypress Creek as waters of the state after its declaratory ruling of April 1977. We also believe that, as the party which secured the prior declaratory order, Velsicol had a right to individual notice of any such hearing that would affect the continuing validity of that order.

If the Agencies' position is that this reclassification has occurred in the manner required by the Tennessee Uniform Administrative Procedures Act and the Water Quality Control Act, Velsicol respectfully requests that the Agencies' provide documentation of the prior notice that the Water Quality Control Board was reconsidering its April 1977 declaratory order and of its final decision to reverse that order.

Furthermore, the agencies Joint Conditional Approval letter states as follows: Cypress Creek was and is now classified in Rule 1200-4-4-.01-(1) under the provisions for "all other surface

Mr. J. M. Apple  
January 16, 2001  
Page 3

waters named or unnamed..." for the protection of fish and aquatic life, recreation, irrigation, and livestock watering and wildlife. Velsicol would like to point out that the proceeding quote is incomplete. The quote in full reads: "All other surface waters named and unnamed in the Memphis Area Basin, *with the exception of wet weather conveyances, which have not been specifically noted* shall be classified...." As noted above Velsicol's position is that Cypress Creek was specifically noted as a wet weather conveyance in 1977 by the Water Quality Control Board.

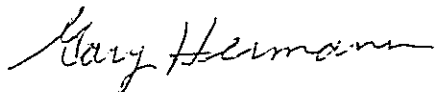
The Agencies' Joint Conditional Approval letter requested that Velsicol submit a resolution to this disputed issue. Velsicol's suggested method of resolution follows:

1. TDEC provide documentation, if available, to support the Agencies' claim that the April 1977 declaratory order has been properly rescinded.
2. If TDEC's documentation does support their claim, the Agencies should then bring all appropriate parties to the table to discuss the need for and means of performing an ecological risk assessment.
3. During the interim, Velsicol will continue to perform the investigations described in the Revised Work Plan.
4. Utilize the results of the Revised Work Plan investigations in considering ecological risk assessment needs.

Velsicol appreciates the opportunity the Agencies have provided to work together to resolve these issues. Please contact me if you have any questions on the recommended approach.

Sincerely,

Memphis Environmental Center, Inc.



Gary J. Hermann, P.E.  
Senior Environmental Projects Manager

003-005response.doc

c: Glenda Akins, Velsicol  
Paul Patterson, Memphis  
Narindar Kumar, USEPA  
Chris Schaefer, TDEC

MEMPHIS ENVIRONMENTAL CENTER, INC.