

# COMMODITIES FLOW SURVEY

## WOOD COUNTY WEST VIRGINIA

Prepared For

Wood County Office Of Emergency Services  
911 Core Road  
Parkersburg, West Virginia

Prepared By

Tiano-Knopp Associates, Inc.  
1350 Market Street  
Parkersburg, West Virginia

July 30, 1999

TABLE OF CONTENTS

1. Executive Summary
2. Introduction
3. Commodities Flow Survey (CFS)
4. Wood County CFS
5. Wood County CFS Purpose
6. Highway Transportation
7. Risk Analysis
8. Railway Transportation
9. Air Transportation
10. River Transportation
11. Vulnerability Analysis
12. Legal and Regulatory Environment of Emergency Planning
13. Attachment I - Hazardous Materials Density Study: Commodity Listing - CSX Transportation
14. Attachment II - Hazardous Materials Registration Statement - Department of Transportation - Form DOT F 5800.2

## EXECUTIVE SUMMARY

This Commodities Flow Survey (CFS) examines the movement of hazardous materials through Wood County by the following modes of transportation: highway, railway, air, and river. The CFS was conducted to assist the Wood County Office of Emergency Services (WCOES) and the Wood County Local Emergency Planning Committee (LEPC) to:

- Develop an accurate understanding of the County's vulnerability for a hazardous materials transportation accident; and
- Identify the general quality or classification of the hazardous material that could be involved in an emergency situation.

The overall goal of this CFS is to enhance the ability of the WCOES and LEPC to anticipate, plan for, respond to, and prevent emergencies resulting from hazardous materials transportation accidents.

Based upon current and historical emergency planning data and information, it was determined that the vast majority of hazardous materials transportation in Wood County is by either highway or railway. With regards to highway transportation, local data and information identified three primary highway transportation routes for examination by the CFS:

- Interstate 77
- U.S. Route 50
- WV Route 2/68

The I-77 CFS was divided into two efforts: one focused on the northbound

lanes and the other on the southbound lanes. Each set of lanes was surveyed on 10 different occasions for 3-hour periods ranging from 6:00 a.m. to 6:00 p.m. The results are summarized below.

### I-77 Northbound Lanes

- 4,398 commercial vehicles were surveyed during 10 different 3-hour surveys.
- A total of 201 hazardous materials carriers were identified.
- I-77 extends for 27 miles through Wood County.

*Risk Analysis:* A hazardous material transportation accident could occur every 6.56 months in the I-77 northbound lanes in Wood County.

### I-77 Southbound Lanes

- 5,348 commercial vehicles were surveyed during 10 different 3 hour surveys.
- A total of 269 hazardous material carriers were identified.
- I-77 extends for 27 miles through Wood County.

*Risk Analysis:* A hazardous materials transportation accident could occur every 5.04 months in the I-77 southbound lanes in Wood County.

### U.S. Route 50 East/West

- 1,425 commercial vehicles were surveyed during 6 different 3 hour surveys.

- A total of 58 hazardous material carriers were identified.
- Route 50 extends for 20 miles through Wood County.

*Risk Analysis:* A hazardous materials transportation accident could occur every 1.5 years on U. S. Route 50 in Wood County.

### WV Route 2/68

- 843 commercial vehicles were surveyed during 6 different 3 hour surveys.
- A total of 45 hazardous material carriers were identified.
- Route 2/68 extends for 32 miles through Wood County.

*Risk Analysis:* A hazardous materials transportation accident could occur every 1.4 years on Route 2/68 in Wood County.

CSX Transportation operates a rail transportation system in Wood County. A hazardous materials density study, which covers the calendar year of 1998, lists each commodity by name, its legend class, and its standard transportation commodity code number. The report identified the most often transported hazardous materials through Wood County and which are as follows:

<u>Rank</u>	<u>Commodity</u>
1	Sodium Hydroxide Solution
2	Chlorine
3	Hydrochloric Acid Solution

4	Liquified Petroleum Gas
5	Carbon Disulfide
6	Sulfur, Molten
7	Propylene Oxide
8	Formaldehyde Solutions
9	Sodium Hydrosulfide Solution
10	Ammonia, Anhydrous, Liquified

This Study also included a Vulnerability Analysis and Inventory which identified and inventoried vulnerable sites in Wood County according to the following issues and concerns:

- Involvement in emergency response operations;
- Involvement in managing emergency recovery operations;
- SARA Title III Facilities;
- Potential for loss of life;
- Involvement of increased/immobile population.

A final section of this Study explores the legal and regulatory environment in which hazardous material incident emergency planning takes place. This section focused on the Federal Emergency Planning and Community Right-To-Know Act (EPCRA) and its four legislated responsibilities:

- Identification of the amounts of chemicals present on, or released from, facilities;
- Understanding the potential problems posed by hazardous materials to

the surrounding communities and environment;

- Providing information to the public and local emergency planning and response organizations;
- Addressing the four major aspects of hazardous materials and reporting:
  - Emergency Planning
  - Emergency Notification
  - Community Right-To-Know
  - Community Right-To-Know: Toxic Chemical Release Inventory Reporting

## INTRODUCTION

The residents of Wood County are exposed to many hazards, all of which have the potential to disrupt the community, cause damage, and create casualties. Possible natural hazards include floods, tornadoes, earthquakes, severe weather,

and fires. There is also the threat of war-related incidents such as nuclear, biochemical, or conventional attack. Other disaster situations could develop from a hazardous materials accident, major transportation accident, terrorism, or civil disorder.

In recent years, the Wood County Office of Emergency Services has adopted a more proactive approach in its efforts to anticipate and plan for responses to emergency situations and events throughout the County. This more proactive attitude is evident in the development of a counter-terrorism plan and the revision and updating of the County's Emergency Operations Plan (EOP).

Wood County is located on the western border of West Virginia along the Ohio River. Approximately 96,000 people reside within the County's 365 square miles of territory. The land terrain consists of medium to wide valleys and rolling to medium steep hills with elevations which vary from a lower range of 590 feet above sea level to a high of approximately 1,300 feet above sea level.

I-77, a major four-lane, north/south interstate highway, bisects the County with two lanes of divided highway in each direction. U. S. Route 50, which is part of the Appalachian Highway System, crosses the County in an east-west direction. Its four lanes are reduced to two lanes just east of the municipal boundaries of Parkersburg.

The Chessie System operates a rail-line that runs along the western border of the County where it parallels the Ohio River in a north-south direction with a bridge crossing the Ohio River at Parkersburg. The Wood County Airport, located in the northwestern portion of the County, provides commercial and private air services.

There are four unincorporated cities in the County. Parkersburg (population - 33,862) is the largest of the four and functions as the center of government

(County seat) and local business and finance center. Parkersburg is located at the confluence of the Little Kanawha and Ohio Rivers. The Cities of Vienna (population - 10,862) and Williamstown are located north of Parkersburg along the Ohio River. North Hills is directly northeast of Parkersburg on State Route 2. Surrounding these incorporated areas are the unincorporated communities of Waverly, Red Hill, Davisville, Mineral Wells, Pettyville, Lubeck, and Washington Bottom.

During the post-World War II period, the petrochemical industry established itself as a major employer in the Mid-Ohio Valley and in Wood County in particular. This activity began with the development of the DuPont Washington Works which currently employs approximately 3,300 people (full-time employees and private contractors) and later, the GE Plastics plant (formerly Borg Warner) which currently employs approximately 900 people. Both of these major industrial facilities, along with smaller operations, are located in the Washington Bottom area of southern Wood County along the Ohio River.

## COMMODITIES FLOW SURVEY (CFS)

At a very general level of analysis, a commodities flow survey (CFS) examines the amount or type, or both, of all commodity materials which move through a specific area. A standard CFS will examine the amount or value of commodities which are destined for and destined from a particular location. And

in doing so, the CFS might examine a single mode of transportation or a range of transportation modes. For example, a standard CFS might analyze the value and volume of all commodities destined for and from Wood County by highway transportation while another CFS might look at all forms of transportation.

In 1993, the Bureau of Transportation Statistics (Department of Transportation) and the Bureau of Census (Department of Commerce) conducted a nationwide CFS which was released in 1996. A selection of the major highlights of this study are listed below.

- In 1993 the 800,000 establishments represented by the CFS shipped \$6 trillion worth of goods weighing 12.2 billion tons.
- Trucks (for-hire, private, and a combination of both) moved 72 percent or \$4.4 trillion of the total value of the shipments.
- The CFS confirmed the growing importance of parcel, post, and courier services, which accounted for over 9 percent of the total value of all shipments in 1993.
- Intermodal shipments exceeded 208 million tons, valued at \$660 billion in 1993.
  - Approximately 41 million tons of goods worth \$83 billion were moved by the “classic” intermodal combination of truck and rail.
  - Assuming 50,000 pounds of payload per truck, about 1½ million large trucks were diverted from the nation’s highways for a major part of their trips.

- Local transportation is important to the nation's commerce.
  - The 1993 CFS reported that 30 percent of the volume and 56 percent of the weight of all shipments were moved between locations less than 50 miles apart.
  - More than 34 percent of the volume and two-thirds of the weight (6.4 trillion tons) were shipped less than 100 miles.
  
- In 1993 petroleum and coal products (excluding all crude oil shipments) together accounted for over 30 percent of domestic commodity shipments measured by both weight and ton mile.
  
- The 1993 CFS determined that West Virginia is a net exporter of commodities.
  - 74.6 percent of the value of West Virginia's total shipments were destined out of the State.
  - 63.7 percent of the weight of West Virginia's total shipments were destined out of the State.

## WOOD COUNTY COMMODITIES FLOW SURVEY (CFS)

This CFS examines the movement of hazardous materials moving through Wood County by all modes of available transportation - highway, rail, water, or air. This Survey was conducted to assist the Wood County Office of Emergency Services (WCOES) and the Wood County Local Emergency Planning Committee (LEPC) to develop plans, responses, and prevention measures for emergency events which are the result of a hazardous materials transportation accident.

Current national trends indicate that commercial traffic of all modes, and commercial highway traffic in particular, are projected to experience substantial growth through the next decade. This is occurring at a time when there is no expectation of expanded road construction programs. This means that a growing number of commercial vehicles, including large semi-trucks/trailers, will be using a static roadway system. As the number of these vehicles increase on existing highways, the chances of accidents involving them also increases. And, as a result the opportunity for an accident involving a hazardous materials hauler is enhanced. This situation creates two critical issues for Wood County emergency planners as they develop response measures and implement prevention measures for hazardous materials transportation accidents.

- The development of an accurate understanding of the County's vulnerability for a hazardous materials transportation accident, and
- The general quality or classification of the hazardous material that may be involved in an emergency event.

## PURPOSE

This commodities flow study examines the movement of hazardous materials through Wood County. These shipments may be destined for Wood County, originate from Wood County, or move through the County, and do so by any available mode of transportation: highway, rail, water, or air. This Study will assist the WCOES and LEPC to better develop emergency plans, response activities, and prevention measures for emergency events resulting from a

hazardous materials transportation accidents.

## GOAL

*The goal of this Study is to enhance the ability of the WCOES to anticipate, plan for, respond to, and prevent emergencies resulting from hazardous materials transportation accidents.*

In order to achieve this goal, this Study will implement the following tasks:

- Task 1.** Given the level of analysis involved in this Study, the first task is to delineate the mode of travel by which the vast bulk of hazardous materials are transported through Wood County.
- Task 2.** Once the modes of travel for hazardous materials have been delineated, the next step involves identifying the specific travel venues which hazardous material transporters use in Wood County.
- Task 3.** Tasks one and two will result in the definition of areas where hazardous material transport accidents are most likely to occur in Wood County.
- Task 4.** As part of this Study, the WCOES will be provided with a good, operating understanding of the general types of hazardous materials which are transported through the County: eg: flammable, non-flammable gas, corrosive, explosive, oxidizer, and poison.

## HIGHWAY TRANSPORTATION

In the course of emergency planning activities the Wood County Office of Emergency Services and the Wood County LEPC developed a rather comprehensive understanding of the hazardous materials which are handled within Wood County. This situation is due to the recent planning activities which have been undertaken by the OES: the development of a counter terrorism plan and the updating and revising of the County's EOP. Also, the OES and LEPC have been made aware of hazardous material handling and storage activities as a result of the

public notification and right-to-know provisions of EPCRA. As a result of this current information, the OES and LEPC identified three primary highway transportation routes for examination by the CFS:

- Interstate 77
- U.S. Route 50
- State Route 2 North/68 South

## Interstate 77

Interstate 77 is a modern four-lane highway which runs north and south connecting the central northeast (Cleveland, Ohio) with the southeast (Columbia, South Carolina). Approximately 27 miles of I-77 passes through Wood County from its southern border with Jackson County to its northern border with Washington County, Ohio. In doing so, the highway passes over both the Little Kanahwa and Ohio Rivers. A total of seven I-77 exits are located in Wood County: Rockport, Mineral Wells, Camden Avenue, State Route 47, U.S. Route 50/7th Street, State Route 2/68, and Williamstown.

The I-77 CFS was separated into two efforts: one focusing on the northbound lanes and the other concentrating on the southbound lanes. This was done to provide a more accurate and comprehensive survey of the hazardous material transportation activities. Each set of lanes was surveyed on 10 different occasions for 3-hour periods, which ranged from 6:00 a.m. to 6:00 p.m.

### I-77 Northbound Lanes

- During 10 different 3-hour surveys a total of 4,398 commercial vehicles were counted, for an average of 440 vehicles per survey.
- A total of 201 hazardous material carriers were counted, for an average of 20 per survey.
- Hazardous material carriers accounted for an average of 4.6 percent of all commercial vehicle traffic during the 10 surveys.
- Below is a percentage breakdown of the general categories of hazardous materials identified during the survey.

<u>Category</u>	<u>%</u>
Flammables	54
Corrosives	23
Non-Flam. Gas	14
Oxidizers	6
Other	3

### I-77 Southbound Lanes

- During 10 different surveys a total of 5,340 commercial vehicles were counted for an average of 534 vehicles per survey.
- A total of 269 hazardous material carriers were identified for an average of 27 per survey.
- Hazardous material carriers accounted for an average of 5.09 percent of all commercial vehicle traffic.
- Below is a percentage breakdown of the general categories of hazardous materials identified during the survey.

<u>Category</u>	<u>%</u>
Flammables	57

Corrosives	21
Non-Flam. Gas	16
Oxidizers	4
Other	2

## U.S. Route 50

U. S. Route 50 enters Wood County at its eastern border with Ritchie County and extends for 20 miles through Wood County to cross the Ohio River at the Memorial Bridge, which connects the cities of Parkersburg and Belpre, Ohio. For most of this journey, Route 50 carries four lanes of east/west bound traffic. It narrows to two-single lanes at its intersection with I-77 approximately one mile from the eastern municipal boundary of Parkersburg. Route 50 joins with 7<sup>th</sup> Street in Parkersburg where it winds its way through primarily business/commercial areas of the City.

Route 50 extends from the Washington, D. C. area across the entire United States, ending in the Sacramento area of California. However, in this region of the country it has lost its prominence as a major east-west route due to its carrying only two lanes of traffic in many sections and the construction of modern, interstate high-ways, particularly I-70 and the I-79/I-64 combination in this region of the country.

The U.S. Route 50 CFS involved 6 different surveys for 3 hour periods which ranged from 6:00 a.m. to 6:00 p.m. Due to the close proximity of the east

and west bound lanes, traffic in each of the lanes could be surveyed simultaneously without sacrificing accuracy.

### U.S. Route 50

- During 6 separate 3-hour surveys a total of 1,425 commercial vehicles were counted, for an average of 237 vehicles per survey.
- A total of 58 hazardous material carriers were counted, for an average of almost 10 per survey.
- Hazardous material carriers accounted for an average of 9.6 percent of all commercial vehicle traffic during the six surveys.
- Below is a percentage breakdown of the general categories of hazardous materials identified during the survey.

<u>Category</u>	<u>%</u>
Flammables	63
Corrosives	18
Non-Flam. Gas	12
Oxidizers	5
Other	2

### WV Route 2/68

This State Route travels along the western border of West Virginia, following the path of the Ohio River and connects the northern panhandle with the Huntington/Tri-State area. And, for the majority of its path, it is a two-lane, secondary highway. It extends for 32 miles through Wood County, entering at the

County's northeastern border with Pleasants County. It passes through the City of Parkersburg and continues southward until it crosses the County's southwestern border with Jackson County.

The WV Route 2/68 CFS was conducted in the same manner as the Route 50 CFS and involved 6 separate surveys for 3-hour periods ranging from 6:00 a.m. to 6:00 p.m. And, traffic in both lanes were surveyed at the same time.

### WV Route 2/68

- During 6 separate 3-hour surveys a total of 843 commercial vehicles were counted, for an average of 140 vehicles per survey.
- A total of 45 hazardous material carriers were counted, for an average of 7.5 per survey.
- Hazardous material carriers accounted for an average of 9.6 percent of all commercial vehicle traffic during the six surveys.
- Below is a percentage breakdown of the general categories of hazardous materials identified during the survey.

<u>Category</u>	<u>%</u>
Flammables	76
Corrosives	11
Non-Flam. Gas	8
Oxidizers	2
Other	3

## RISK ANALYSIS

As explained earlier, the CFS concentrated on three primary transportation routes which pass through Wood County: Interstate 77, U. S. Route 50, and WV Route 2/68. All commercial vehicles were counted, and those with hazardous material placards were identified. Transcaer provides a methodology to calculate the probability of a hazardous material transportation incident on the roadways within the boundaries of a specific area based upon:

- The number of hazardous material placarded vehicles which are observed in the CFS,
- The highway road miles within the boundaries of the political subdivision, or other specified area, and
- The national hazardous material accident frequency rate.

### Hazardous Materials Accident Risk Calculation

This calculation requires the following data:

- Highway miles within the CFS area (“CFS miles”)
- The number of hazardous materials “placarded” vehicles, and
- The hours of survey time.

The “risk calculation” is performed as follows:

- “CFS miles” x “placarded” vehicles = hazmat miles
- “Hazmat” miles/1MM x 1.21 = hazmat accidents

(1) The national truck accident frequency rate/1MM miles

- Survey hours/24 = “Survey days”
- “Hazmat” accidents/”Survey days” x 365 (days) results in the estimated number of hazardous materials accidents per year.

## Risk Analysis/I-77 North-Bound Lanes

The CFS provided the following data.

- A total of 27 miles of I-77 is in Wood County.
- An average of 20 hazardous material placarded vehicles per survey.
- Each survey was conducted for 3 hours.

When the results of each risk calculation for the 10 separate surveys were averaged, the risk probabilities are as follows:

- An estimated 1.9 hazardous material accidents could occur each year in the northbound lanes of I-77 in Wood County.
- A hazardous material transportation accident could occur every 6.56 months in the I-77 northbound lanes in Wood County.

The results of the 10 CF Surveys are summarized below.

<u>Survey No.</u>	<u>All Commercial Vehicles</u>	<u>Haz-Mat Vehicles</u>	<u>% Haz-Mat</u>	<u>Estimated # Haz-Mat Accidents/Year</u>
1	330	24	7.2	2.277
2	492	18	3.6	1.723
3	525	15	2.8	1.431
4	363	21	5.7	2.014
5	462	18	3.8	1.722
6	501	18	3.5	1.722
7	351	21	5.9	2.014
8	573	33	5.7	3.144
9	384	18	4.6	1.722

10	417	15	3.5	1.431
TOTAL	4,398	201	—	—
AVERAGE	440	20	4.6	1.9

### Risk Analysis/I-77 South-Bound Lanes

The CFS provided the following data:

- A total of 27 miles of I-77 in Wood County.
- An average of 27 hazardous material placarded vehicles per survey.
- Each survey was conducted for three hours.

When the results of each risk calculation for the 10 separate surveys were averaged, the risk probability are as follows:

- An estimated 2.5 hazardous materials accidents could occur each year in the southbound lanes of I-77 in Wood County.
- A hazardous materials transportation accident could occur every 5.04 months in the I-77 southbound lanes in Wood County.

The results of the 10 CF Surveys are summarized below.

<u>Survey No.</u>	<u>All Commercial Vehicles</u>	<u>Haz-Mat Vehicles</u>	<u>% Haz-Mat</u>	<u>Estimated # Haz-Mat Accidents/Year</u>
1	372	24	6.4	2.277
2	558	30	5.4	2.862
3	699	32	4.6	3.053
4	417	21	5.1	2.003
5	534	26	4.7	2.480
6	651	33	5.1	3.148
7	462	27	5.8	2.575
8	621	30	4.8	2.861
9	507	25	4.9	2.190

10	519	21	4.1	2.015
TOTAL	5,340	269	—	—
AVERAGE	534	27	5.09	2.54

### Risk Analysis U. S. Route 50

The CFS provided the following data:

- A total of 20 miles of U. S. Route 50 in Wood County.
- An average of 9.6 hazardous material placarded vehicles per survey.
- Each survey was conducted for 3 hours.

When the results of each risk calculation for the 6 separate surveys were averaged, the risk probabilities are as follows:

- An estimated 0.184 hazardous materials accidents could occur each year on U. S. Route 50 in Wood County.
- A hazardous materials transportation accident could occur every 1.5 years on U. S. Route 50 in Wood County.

The results of the 6 CF Surveys are summarized below:

<u>Survey No.</u>	<u>All Commercial Vehicles</u>	<u>Haz-Mat Vehicles</u>	<u>% Haz-Mat</u>	<u>Estimated # Haz-Mat Accidents/Year</u>
1	228	9	3.9	0.642
2	264	12	4.5	0.848
3	192	6	3.1	0.424
4	207	9	4.3	0.636
5	261	10	3.8	0.707
6	273	12	4.4	0.848
TOTAL	1,425	58	—	—
AVERAGE	237	96	4	0.684

## Risk Analysis/WV Route 2/68

The CFS provided the following data:

- A total of 32 miles of WV Route 2/68 in Wood County.
- An average of 7.5 hazardous materials placarded vehicles per survey.
- Each survey was conducted for 3 hours.

When the results of each risk calculation for the 6 separate surveys were averaged, the risk probabilities are as follows:

- An estimate 0.346 hazardous materials accident could occur each year on WV route 2/68 in Wood County.
- A hazardous materials transportation accident could occur every 1.4 years on WV Route 2/68 in Wood County.

The results of the 6 CF Surveys are summarized below:

<u>Survey No.</u>	<u>All Commercial Vehicles</u>	<u>Haz-Mat Vehicles</u>	<u>% Haz-Mat</u>	<u>Estimated # Haz-Mat Accidents/Year</u>
1	120	6	5	0.672
2	111	3	2.7	0.339
3	153	9	5.8	1.017
4	147	12	8.2	1.357
5	180	9	5	1.017
6	132	6	4.5	0.672

TOTAL	843	45	—	—
AVERAGE	140	7.5	5.2	0.346

## RAILWAY TRANSPORTATION

CSX Transportation operates a rail transportation system in Wood County which serves primarily the industrial operations located in the Washington Bottom area of southern Wood County. The railroad parallels the Ohio River with two river crossings: one over the Little Kanawha River near its confluence with the Ohio River, and a bridge across the Ohio River between the Cities of Parkersburg and Belpre, Ohio.

### Hazardous Materials Density Study

CSX's Chemical Safety Excellence Team prepares hazardous materials density studies for political subdivisions (primarily counties) wherein they operate rail transport systems. These reports are prepared on an annual basis and provide local governments and communities with information regarding both the types and amounts of hazardous materials which are transported through their county or community by rail. This information is also intended to assist emergency planning activities.

CSX has prepared and provided a hazardous materials density study for Wood County. This Study covers the period of January 1, 1998 through December 31, 1998 and reports that this is the latest year for which they have data. The entire report lists each commodity (hazardous material) by name, its legend class, and its standard transportation commodity code number. The information listings are

pro-vided in carload ranges to protected the proprietary nature of releasing information ac-cording to exact traffic patterns. The report identifies the ten most often trans-ported hazardous materials through Wood County.

## Wood County Total Traffic

The Study reports that during 1998 total hazardous materials handled by CSX in Wood County involved 7,701 shipments. This total is qualified in that it excludes any intermodal shipments which would involve a trailer or container on flat rail cars. Intermodal hazardous materials shipments are non-bulk and contained in 55 gallon/package formats or smaller. An example would be petroleum packaged products, such as industrial or lubricating oils.

## Wood County Top Ten Products

An analysis of the hazardous materials density report demonstrates that 10 products accounted for 5,975 carloads of the total shipments of 7,701. These 10 products represented 77 percent of the total hazardous materials carloads handled in Wood County during 1998. These materials are listed below in order of their frequency.

<u>Rank</u>	<u>Commodity</u>	<u>Hazard Class</u>	<u>Carloads</u>
1	Sodium Hydroxide Solution	8	2,073
2	Chlorine	2.3	1,099
3	Hydrochloric Acid Solution	8	1,052
4	Liquified Petroleum Gas	2.1	341
5	Carbon Disulfied	3	274
6	Sulfer, Molten	9 (4.1)	261

7	Proplene Oxide	3	236
8	Formaldehyde Solutions	8	227
9	Sodium Hydrosulfide Solution	8	207
10	Ammonia, Anhydrous, Liquified	2.2	205

## AIR TRANSPORTATION

The Wood County Airport is located approximately five miles north of Parkersburg on State Route 31 near the intersection with State Route 68. The airport provides private and commercial air service to the Wood County area. Discussions with airport officials confirm that no hazardous materials are transported into or out of Wood County by air transport.

## RIVER TRANSPORTATION

Wood County has two important navigable rivers: the Ohio River and the Little Kanawha River. The Ohio forms the County's western boundary with the State of Ohio, and the Little Kanawha passes through the County to join the Ohio River at Parkersburg. Both are important venues for recreational and commercial river traffic. The Ohio River is particularly important for commercial traffic. During recent emergency planning activities, the WCOES and the LEPC has collected information on the frequency of hazardous material shipments on both rivers. This information strongly indicates that very few hazardous materials are

transported through Wood County on either river. Recent conversations with U. S. Army Corps of Engineer personnel operating the navigation locks at Belleville (Ohio River) continue to confirm this assessment.

## VULNERABILITY ANALYSIS AND INVENTORY

As a part of this Study, a vulnerability analysis of particular sites and facilities in Wood County was conducted. Vulnerable sites were identified and inventoried according to the following issues:

- Involvement in emergency response operations;
- Involvement in managing emergency recovery operations;
- SARA Title III Facilities;
- Potential for loss of life;
- Involvement of increased/immobile population.

Given these concerns, the following facilities were identified as vulnerable and should be provided special consideration in all future emergency planning activities.

### Government Facilities

Emergency Response Organizations:

- Wood County Sheriff's Department
- Parkersburg City Building (Police and Fire Departments)
- Wood County E-911 Center

- Vienna Police Department
- Vienna Fire Department
- Williamstown City Building (Police Department)
- West Virginia State Police Barracks
- Waverly Volunteer Fire Department
- Eastwood Volunteer Fire Department
- Deerwalk Volunteer Fire Department
- Blennerhassett Volunteer Fire Department
- Washington Bottom Volunteer Fire Department
- Williamstown Volunteer Fire Department
- Lubeck Volunteer Fire Department
- PMBS Volunteer Fire Department
- Pond Creek Volunteer Fire Department

### Other

- Wood County Correctional Center
- US Bureau of Public Debt Complex
- Parkersburg Water Treatment Plant
- Williamstown Water Treatment Plant
- Vienna Water Treatment Plant
- Claywood Park Public Service District
- Lubeck Public Service District
- Union-Williams Public Service District
- Camden Clark Memorial Hospital
- St. Joseph's Hospital

### Private Facilities

- Grand Central Mall
- DuPont\*
- GE Plastics\*
- Lowe's
- Wal Mart
- Sam's Club
- AGA Gas\*
- Ames Plant #2\*
- Fenton Glass Company\*
- Bell Atlantic Telephone Company\*
- Schott Scientific Glass\*
- Nashua Photo\*
- Parkersburg YMCA\*
- Virginia Welding Supply\*
- Park Shopping Center
- Ashland Petroleum Company
- Stuart Oil Company

## Recreational Facilities

- Mountwood Park
- Parkersburg City Park
- Parkersburg High School Stadium Field
- Blennerhassett Island
- Boys and Girls Club of Parkersburg

## Educational Facilities

- West Virginia University-Parkersburg
- Parkersburg High School

- South Parkersburg High School
- Williamstown High School
- Parkersburg Catholic High School
- Parkersburg Catholic Elementary School
- Blennerhassett Junior High School
- Edison Junior High School
- Hamilton Junior High School
- Jackson Junior High School
- Van Devender High School
- Blennerhassett Elementary School
- Criss Elementary School
- Edgelawn Elementary School
- Emerson Elementary School
- Fairplains Elementary School
- Franklin Elementary School
- Gihon Elementary School
- Greenmont Elementary School
- Jefferson Elementary School
- Kanawha Elementary School
- Lincoln Elementary School
- Lubeck Elementary School
- Madison Elementary School
- Maplewood Elementary School
- Martin Elementary School
- McKinley Elementary School
- Mineral Wells Elementary School
- Neale Elementary School
- Rayon Elementary School/TREK

- Vienna Elementary School
- Waverly Elementary School
- Williamstown Elementary School
- Worthington Elementary School

## Child Care Centers

- Aunt Sissy's Day Care
- Bundles of Joy Day Care
- Children's Coliseum Day Care
- Cotton Patch Day Care
- The Golden Carriage
- Hansel and Gretel Day Care
- Henry Logan Head Start Program
- Heaven Sent Day Care
- Homecrest Community Child Care Center
- Jack and Jill Day Nursery
- Learning Ladder Child Care
- Lovingkindness Child Care Center
- Mineral Wells Day Care Center
- Mrs. Jeanie's Little School
- Parkersburg Day Care Association
- Playland Arcade
- Tiny Tots Daycare
- Tiny Town Day Care Center
- Vienna Child Care Center
- Washington Bottom Day Care
- Wee Care Day Care
- YWCA Day Care Center

\* SARA III Facilities

## LEGAL AND REGULATORY ENVIRONMENT OF EMERGENCY PLANNING

### Federal Emergency Planning and Community Right-To-Know (EPCRA)

The Federal Emergency Planning and Community Right-To-Know Act (EPCRA) was enacted by Congress in November 1986. EPCRA is a section of the Superfund Amendments and Reauthorization Act of 1986 (SARA). And, as a result, EPCRA is often referred to as either “SARA Title III” or the “Community Right-To-Know Act”. The SARA legislation encompasses a huge amount of environmental regulation and reforms with EPCRA being included in response to a growing concern about the effect of chemical releases in communities.

The primary focus of EPCRA is distributed among the four legislated responsibilities as listed below:

- Identify the amounts of chemicals present on, or released from, facilities,
- Understand the potential problems that hazardous materials pose to the surrounding communities and environment,
- Provide information to the public and local emergency planning and response organizations,
- Address four major aspects of hazardous materials and reporting:
  - Emergency Planning

- Emergency Notification
- Community Right-To-Know
- Community Right-To-Know: Toxic Chemical Release Inventory Reporting.

EPCRA requires governments at all levels (Federal, State, and Local) as well as private industry to be prepared to handle and manage emergency events or situations involving a wide range of hazardous materials. This legislation requires each state to create State Emergency Response Commissions (SERC) to oversee and manage the planning for the various types of emergencies anticipated under EPCRA. Once they are organized, each SERC is then responsible for appointing Local Emergency Planning Committees (LEPCs) to implement emergency response planning activities at the local level.

A major responsibility of an LEPC is to ensure that the local community is prepared to respond to an emergency involving hazardous materials. LEPCs are also required to provide information to the public about the use of hazardous materials in the community. EPCRA defined four major roles and responsibilities for LEPCs in their local community:

- Implement and exercise the plan developed for emergency responses;
- Receive information from local industry on hazardous materials used in the community;
- Respond to public requests for chemical information;
- Bring industry, municipalities, and residents together to discuss related issues and to maintain communications.

EPCRA continues to also define the various local organizations, groups, or

other categories which should be represented in each LEPC's membership and includes the following:

- Elected Officials
- Law Enforcement Agencies
- Emergency Management/Civil Defense Coordinators
- Fire Fighting Organizations
- First Aid/Emergency Medical Service Organizations
- Health Agencies or Organizations
- Environmental Groups or Organizations
- Hospitals or Health Care Facilities
- Broadcast or Print Media Organizations
- Community Groups
- Owners/Operators of Facilities Handling Hazardous Materials Regulated Under EPCRA
- Members of the General Public

Under EPCRA the SERCs and LEPCs are responsible for receiving and processing public requests for facility plans, data sheets, forms, and other information submitted under the reporting and notification provisions of EPCRA. Also, the LEPCs are responsible for providing for public meetings to discuss emergency plans and the distribution of such plans.

EPCRA mandates that the owners or operators of a facility provide a one-time written notification to both the appropriate SERC and LEPC of any "Extremely Hazardous Substance" (EHS) which is present at the facility at any single time in amounts which are either equal to or in excess of the "Threshold Planning Quantity" (TPQ) for that substance. The threshold demonstration is

based upon the total pounds of EHS present at the entire facility and not just the amount at a single location within the facility. Facilities which handle EHSs as regulated by EPCRA include (but are not limited to) the following:

- Gasoline/Petroleum Wholesale Bulk Plants
- Gasoline/Petroleum Retail Stores
- Manufacturers
- Electronics
- Sewage Treatment Plants
- Auto Body Repair/Paint Shops
- Warehouse Organizations
- Recyclers
- Construction Sites
- Refrigeration Operations/Transport/Repair
- Metal Platers
- Salvage/Scrap Yards
- Hospitals/Health Care Facilities
- Metal Fabricators
- Colleges/Universities

As was explained earlier, whether or not any particular facility falls under the regulating authority of EPCRA depends upon the existence of certain hazardous materials at the facility and in what quantity they exist at any one time. Examples of hazardous materials which are regulated by EPCRA include (but are not limited to) the following:

- Ammonia
- Petroleum Products

- Heating Oil
- Metals/Alloys
- Propane
- Refrigerants
- Chlorine
- Acids
- Paints
- Caustics
- Liquid Natural Gas
- Antifreeze Compounds
- Pesticides
- Fertilizers

And, as was explained earlier, the second factor in determining a facility's regulatory status under EPCRA depends upon the actual amount of the regulated material in relation to its threshold amount. The threshold amount is different for different materials depending upon the degree of hazard associated with the particular material. As a result, the threshold amount for some extremely hazardous materials may be as low as five pounds, while the threshold amount for less hazardous substances may range as high as 10,000 pounds.

Any facility which falls under the regulations of EPCRA are required to submit reports to both the appropriate SERC and LEPC on one (in most all cases) of the three following forms.

- SARA Tier II Report
- Toxics Release Inventory Form R
- Material Safety Data Sheets (MSDSs)

## SARA Tier II Report - Emergency and Hazardous Chemical Inventory Forms - Section 312 (EPCRA)

Requires facility owners or operators, who are required by the Occupational Safety and Health Administration's (OSHA) Hazardous Communication Standard to have MSDs, to prepare and submit emergency and hazardous chemical inventory forms to the SERC, the LEPC, and the local fire department. The inventory forms may contain either "Tier I" or "Tier II" information.

- Tier I information is the minimum required under Section 312 and includes estimates of maximum and average daily amounts as well as the general locations of hazardous chemicals.
- Tier II information may be requested by the SERC, LEPC, or local fire department. It includes all of the Tier I information and more detailed information about the specific hazardous chemical(s) and their storage.

**Toxics Release Inventory Form (R) Section 313 (EPCRA)** requires owners or operators of facilities which manufacture, process, or otherwise "use" any listed toxic chemical to complete a toxic chemical release form (Form R) for each listed toxic chemical if the annual threshold requirements for that chemical are surpassed. These forms are collectively referred to as the Toxic Release Inventory (TRI). The Form R report covers on-site releases (to air, land, water, and underground injection) and off-site transfers (to Publicly Owned Treatment Works (POTWs) and to disposal, recycling, energy recovery or treatment facilities of toxic

chemicals.

### Material Safety Data Sheets - Section 311 (EPCRA)

Requires the owners or operators of facilities subject to OSHA material safety data sheets (MSDs) availability requirements for “hazardous chemicals” to submit MSDs, or a list of MSDs chemicals, to the SERC, the LEPC, and the local fire department.

### Chemical Classification (EPCRA)

EPCRA identifies four classes of chemicals which are subject to its storage and release reporting requirements:

- Hazardous Chemicals,
- Hazardous Substances,
- Extremely Hazardous Substances, and
- Toxic Chemicals.

Federal statutes define each of these classes of chemicals and each is subject to particular reporting requirements by EPCRA. Further, many chemicals are listed under more than one EPCRA classification. A more specific definition of each of the four chemical classifications is as follows.

1. **Hazardous Chemicals** - are defined by the Occupational Safety and Health Administration (OSHA) as chemicals that are a physical or health hazard. These hazards are defined at length in Title 29CFR Part 1910.1200(c). In reality, the three other classifications of chemicals are actually subsets of the hazardous chemical classification.

2. **Hazardous Substances** - are defined in Sections 101 and 102 of the Environmental Protection Agency's (EPA) Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA). In rules promulgated under CERCLA authority, a list of hazardous substances is published in Table 302.4, Title 40CFR Part 302. And, it should be pointed out that Section 103 of CERCLA and Section 304 of EPCRA require the reporting of "releases", as opposed to the storage of CERCLA defined hazardous substances.

3. **Extremely Hazardous Substances** - often referred to as EHSs, are chemicals defined and listed in Appendices A and B of Title 40CFR Part 355. Some of the EHSs are also CERCLA hazardous substances. Sections 302, 303, and 304 of EPCRA require the reporting of either the storage or the use of EHSs.

4. **Toxic Chemicals** - are defined and listed in Title 40 CFR Part 372.65 of the EPCRA regulations. Some of these chemicals are EHSs, CERCLA hazardous substances, or both. EPCRA (Section 313) requires the preparation and submission of detailed reports on the fate of toxic chemicals manufactured, processed, or otherwise "used" by facilities.

# ATTACHMENTS

## ATTACHMENT I

### Hazardous Materials Density Study

### Commodity Listing

### CSX Transportation

<u>STCC</u>	<u>SHIPPING CODENAME</u>	<u>HAZARD CLASS</u>	<u>PARKERSBURG BROOKLYN JCT.</u>
4935240	Sodium Hydroxide Sol.	Class 8	Heavy
4920523	Chlorine	Class 2.3	Med. Heavy
4930228	Hydrochloric Acid	Class 8	Med. Heavy
4930228	Hydrochloric Acid		
4930228	Solution		
4905752	Petroleum Gases, Liquefie	Class 2.1	Med. Light
4905752	Liquefied Petroleum Gas		
4908125	Carbon Disulfide	Class 3	Med. Light
4908125	Carbon Disulfide		
4917403	Sulfur, Molten	Class 4.1	Med. Light
4917403	Sulfur, Molten		
4906620	Propylene Oxide	Class 3	Light

4932059	Formaldehyde Solutions	Class 8	Light
4935268 4935268	Sodium Hydrosulfide Solution	Class 8	Light
4904210 4904210 4904210 4904210	Ammonia, Anhydrous Ammonia, Anhydrous Liquefied Ammonia Solutions	Class 2.2	Light
4935235	Sodium Hydroxide Solid	Class 8	Light
4930233	Nitric Acid	Class 8	Light
4921455	Nitrobenzene	Class 6.1	Light
4966109 4966109 4966109	Other Regulated Substances Liquid, N.O.S.	Class 8	Light

<b>STCC</b>	<b><u>SHIPPING CODENAME</u></b>	<b><u>HAZARD CLASS</u></b>	<b><u>PARKERSBURG BROOKLYN JCT.</u></b>
-------------	-------------------------------------	--------------------------------	---

4909153	Chlorobenzene	Class 3	Light
4916323	Trichlorosilane	Class 4.3	Light
4912540 4912540 4912540	Elevated Temperature Liquid, Flammable N.O.S.	Class 3	Light
4909159 4909159 4909159 4909159	Ethanol Ethyl Alcohol Ethanol Solutions Ethyl Alcohol Solutions	Class 3	Light
4941104 4941104 4941104	Other Regulated Substances, Liquid N.O.S.	Class 9	Light
4920353	Ethylene Oxide	Class 2.3	Light

4920353	Ethylene Oxide With Nitrogen		
4909230	Methanol	Class 3	Light
4909230	Methyl Alcohol		
4921575	Toluene Diisocyanate	Class 6.1	Light
4945770	Sulfur, Molten	Class 9	Light
4945770	Sulfur, Molten		
4909305	Toluene	Class 3	Light
4921410	Aniline	Class 6.1	Light
4921203	Toxic Liquids, Corrosive Organic, N.O.S.	Class 6.1	Light
4921203			
4925203	O-Dichlorobenzene	Class 6.1	Light

**STCC**      **SHIPPING CODENAME**      **HAZARD CLASS**      **PARKERSBURG BROOKLYN JCT.**

4909205	Isopropanol	Class 3	Light
4909205	Isopropyl Alcohol		
4909205	Isopropyl Alcohol		
4913250	Combustible Liquid, N.O.S.	Class CL	Light
4930040	Sulfuric Acid	Class 8	Light
4930040	Sulfuric Acid		
4932539	Phosphorus Trichloride	Class 8	Light
4906420	Acrylonitrile, Inhibited	Class 3	Light
4916365	Methyldichlorosilane	Class 4.3	Light
4925275	Toxic, Liquids, Organic	Class 6.1	Light
4925275	N.O.S.		

4915385	Combustible Liquid, N.O.S.	Class CL	Light
4918311	Ammonium Nitrate	Class 5.1	Light
4914007	Alcohols, N.O.S.	Class CL	Light
4941102	Other Regulated	Class 9	Light
4941102	Substances, Liquid		
4941102	Solid, N.O.S.		
4875648	Hazardous Waste	Class 9	Light
4875648	Solid, N.O.S.		
4935640	Hexamethylenediamine	Class 8	Light
4935640	Solid		
4909237	Methanol	Class 3	Light
4909237	Methyl Alcohol		
4912631	Isopropenylbenzene	Class 3	Light

<b>STCC</b>	<b><u>SHIPPING CODENAME</u></b>	<b><u>HAZARD CLASS</u></b>	<b><u>PARKERSBURG BROOKLYN JCT.</u></b>
-------------	-------------------------------------	--------------------------------	---

4941180	Other Regulated	Class 9	Light
4941180	Substances		
4941180	Solid, N.O.S.		
4907230	Isoprene, Inhibited	Class 3	Light
4908119	Butyraldehyde	Class 3	Light
4909130	Butanols	Class 3	Light
4910135	Coal Tar Distillates	Class 3	Light
4910135	Flammable		
4910256	Petroleum Distillates	Class 3	Light
4910256	N.O.S.		
4910256	Petroleum Products		
4910256	N.O.S.		

4921016	Phosphorus Trichloride	Class 6.1	Light
4925175	2,4-Toluylenediamine	Class 6.1	Light
4925175	2,4-Toluenediamine		
4966110	Environmentally Hazard.	Class 9	Light
4966110	Substances, Solid, N.O.S.		
4909382	Petroleum Distillates	Class 3	Light
4909382	N.O.S.		
4909382	Petroleum Products		
4909382	N.O.S.		
4910285	Hydrocarbons, Liquid	Class 3	Light
4910285	N.O.S.		
4921454	Toxic, Liquids, Organic	Class 6.1	Light
4921454	N.O.S.		
4921598	Phenol, Molten	Class 6.1	Light

<b>STCC</b>	<b><u>SHIPPING CODENAME</u></b>	<b><u>HAZARD CLASS</u></b>	<b><u>PARKERSBURG BROOKLYN JCT.</u></b>
-------------	-------------------------------------	--------------------------------	---

4960135	Environmentally Hazard.	Class 9	Light
4960135	Substances, Solid		
4960135	N.O.S.		
4960159	Environmentally Hazard.	Class 9	Light
4960159	Substances, Liquid		
4960159	N.O.S.		

CARLOAD RANGE: BLANK = 0  
NONE = 0 - 0; LIGHT = 1 - 250; MED.LGT. = 251 - 500  
MEDIUM = 501 - 1000; MED. HVY. = 1,001 - 2000; HEAVY = 2,001 - 99,999