



### Water Transportation

Water transportation consumes much less energy per ton-mile of freight carried than either rail or truck. This factor, combined with the remoteness of the vessel's operating environment from population centers, substantially reduces the impact of its exhaust emissions. Hydrocarbon vapor emissions from tank ships and barges, while loading or unloading petroleum products, amount to approximately .02 percent of all volatile organic emissions nationally.

Protection of the marine environment from pollution is a major concern shared by the barge and towing industry with both federal and state environmental agencies. The U.S. Coast Guard has law enforcement responsibilities relating to the protection of the marine environment, and many of its vessel safety regulations have been enacted to serve this purpose. Additionally, the Clean Air Act of 1990 required installation of vapor recovery systems to reduce emissions of petroleum and petrochemical vapors on barges designed to carry liquid.

*Source: U.S. Environmental Protection Agency*

### Transportation Mode Comparison: Energy-Environment Efficiency

A semi can carry one ton of cargo 155 miles per one gallon of fuel.

A train can carry one ton of cargo 413 miles per one gallon of fuel.

An inland barge can carry one ton of cargo 576 miles per one gallon of fuel.

One barge (no tows) can transport 1,500 tons. Approximately 70 semi trucks or 16 jumbo railroad cars would be needed to transport the same amount of goods.

One 15-barge tow can transport 22,500 tons of goods. Approximately 1,050 semi trucks or two unit trains would be needed to transport the same amount of goods.

*Source: U.S. Department of Transportation*

## Transportation Mode Comparison: Emissions Produced

Pollutants (grams/ton-mile) produced in moving one ton of cargo 1,000 miles:

Emissions (Grams/Ton-Mile)				
Mode	HC	CO	NO <sub>x</sub>	PM
Inland Towing	.01737	.04621	.46907	.01164
Eastern Railroads	.02419	.06434	.65312	.01624
Western Railroads	.02423	.06445	.65423	.01621
Truck	.020	.136	.732	.018

HC= hydrocarbon emissions, CO= carbon monoxide emissions, NO<sub>x</sub>= nitrogen oxide emissions, PM= particulate matter emissions

*Source: U.S. Department of Transportation*

The U.S. Environmental Protection Agency predicts that a shift in transportation from vessels to trucks would cause: a 826 percent increase in fuel use annually, a 709 percent increase in exhaust emissions: annually, a 5,967 percent increase in probable accidents each year, the need to annually dispose of 2,746 used truck tires and an additional truck traffic load of 1,333 heavy vehicles on the roads each day.

*Source: Minnesota Department of Transportation*

## Organization

The St. Paul District office headquarters is located in downtown St. Paul, Minn. The agency employs around 700 people located in 41 field sites in five states. The St. Paul District is one of six districts that make up the U.S. Army Corps of Engineers' Mississippi Valley Division, which is headquartered in Vicksburg, Miss.