Greater Saint Louis Sub-Area

About the Sub Area

The Greater Saint Louis Sub Area (GSL) comprises Madison, St. Clair and Monroe counties in Illinois, and the City of St. Louis, and St. Louis, St. Charles, and Jefferson counties in Missouri. The area extends along the Upper Mississippi River from river mile 208.5, at the northern boundary of Madison County, to river mile 135.9 at the southern boundary of Monroe County. Its western boundary is the western boundary of St. Charles County at river mile 68.5 on the lower Missouri River. As a result of its location at the confluence of the Missouri and Mississippi rivers, with additional influence from the Illinois River, which joins the Mississippi just north of the sub-area at river mile 218.5, and the Meramec River, which joins the Mississippi River in the southern part of the sub-area between Jefferson and St. Louis counties at river mile 160.7, the sub-area is at risk of major flooding, despite a levee system. High water has the potential to cause spills, as well as to impact response efforts. The GSL area is a transportation hub. Interstate 70, which passes through the sub-area's center from east to west, and the many railroads and pipelines that cross the area are all major carriers of hazardous materials.

The GSL Sub-Area is characterized by a continental climate with weather patterns most typically affected by moisture from the Gulf of Mexico meeting weather-making fronts entering from the north. The interactions of cool or cold fronts from the arctic or Canada with warm, moist air occasionally produce severe weather, including tornadoes. Winters result in below-zero temperatures an average of two or three days a year. Temperatures remain at freezing or below for less than 25 days of most years. Total snowfall averages slightly more than 18 inches per year, with snowfalls of an inch or more falling from 5 to 10 days per winter. During the summer, temperatures reach 90 degrees F. or higher on from 35 to 40 days, with 100 degrees or higher on no more than 5 days. Thunderstorms occur between 40 and 50 days a year, with total annual precipitation of about 34 inches per year. March through May is the wettest period.

Spill Risks

Oil and petroleum product pipelines present the greatest potential threat of a significant spill in the GSL Sub-Area. Fourteen oil and petroleum product pipelines cross the Mississippi River between Saint Charles County, MO, and the cities of Wood River and Roxana, IL. Three additional pipelines cross from Saint Louis County and the City of Saint Louis, MO, to Madison County, IL. Eight pipelines cross the Missouri River near the City of Saint Charles, Howell Island State Wildlife Area, river mile 55, and the City of Washington.

Over 40 facilities in the Sub-Area store large quantities (>1000 bbls) of oil or petroleum products in above ground tanks. Some of these function as marine transfer facilities, fueling vessels and stocking barges. This presents the risk of a spill directly into the Mississippi River.

Transport of oil and petroleum products also presents a spill risk. The transportation network of the Sub-Area is dense within the heavily developed urban area. Railroads run extensively throughout the Sub-Area. In many areas, tracks lie within floodplain or in close proximity to the Mississippi River. Active railroads cross the River at river miles 179 and 183. All main tributaries have railroad crossings within the sub-area. Highways and major roads cross the Mississippi River near river miles 169, 179, 180, 183, 191, and 202. Vessels, tugs, and barges comprise a large volume transport network on the Mississippi and Missouri Rivers. All of these modes present the chance of a spill.

Response Considerations

The following are the primary goals for spill response in the Greater Saint Louis Sub-Area:

- Notify water suppliers of a spill. This will normally be enough, though suppliers may request on-water actions to protect intakes.

- Protect downstream resources by collecting spilled product as near to the spill source as possible.

Water from the Mississippi and Missouri Rivers does not mix for miles downstream. Responders should be aware of this when planning response actions. A spill in the Missouri River should be collected above or at the confluence if possible. Mississippi River water splits at the Chain of Rocks Canal. Models estimate that up to 40% of flow enters the canal, the remainder continues in the main channel. Flow is too strong above the canal to use boom or barge to deflect spilled product into the canal for collection; responders may need to rely on natural flow to direct product into the canal.

The low water dam and the Chain of Rocks are hazardous areas that should be avoided by response vessels. Side channels are few in the Sub-Area, and often are valuable aquatic habitat areas. Responders should work in consultation with the appropriate resource trustees to determine how best to protect or utilize these channels in a response event.

Responders will need to adjust tactics depending on seasonal river conditions. During high water, the Mississippi River may be flowing too fast for any boom or barge deflection or collection actions in the main channel.

The Saint Louis Metropolitan Sewer District has three wastewater outfalls near river miles 183, 172, and 161 on the right descending bank. Responders should be aware of outfall locations that may deliver spills on land to the river.

Availability of Local Resonse Resources

In-Situ Burning
The uses of these tactics are discussed in the Upper Mississippi River Spill Response Plan and Resource Manual. If in-situ burning is being considered as a response tactic, the in-situ burn checklist found in the UMR Response Plan should be used to evaluate this tactic. In situ burning will require close coordination with the Federal and State Resource Trustees. Some of the response tactics that have been developed in this document do recommend collection and burning of the product if appropriate. This does not constitute a pre-approval for in-situ burning; consulting the checklist and close coordination with Federal and State Responders and Resource Trustees remains necessary.

Chemical Oil Spill Treating Agents (COSTAs)
The use of COSTAs requires approval of the Regional Response Team. If the use of a COSTA was considered it must be registered on the National Product Schedule and the Incident Commander, FOSC, SOSC and State and Federal Trustees would have to be in agreement to utilize the registered product. The use of dispersants is not allowed within the boundaries of USEPA Regions 5 and 7 or by the Regional Response Teams. This is primarily because the dispersants solubilize or drive the product into

the water column and the river is utilized as a drinking water resource. Driving the spilled product into the water column can have adverse affects on the aquatic life and vegetation. First Responders should also take into account that fire fighting foams or dispersants such as "biosolve" or other products can also solubilize the spilled product and release with the fire fighting water or storm water and then discharge to the river.

Use of Locks and Dams/Coordination with USACE

While limited in its potential impact and duration, modification of hydraulic control at Lock and Dams 26 or 27 to help slow, stop or divert flow of a spilled product to a collection area could be part of a response operation. The Lock and Dams may also be natural collection points for spilled product or these structures may be used to alter the flow of the spilled product and facilitate collection. Additionally, the river access and room to stage equipment and command posts at the Lock and Dams should be considered.

Responders must contact the lockmaster for the appropriate lock for site-specific assistance and information. See the emergency contact list for these phone numbers.

Resource Description

There are many natural resources valued by the public within the GSL Sub-Area. These can often be protected from contamination during a spill response, and are highlighted in the strategies. There are important terrestrial habitats such as the Maple Island Ecological Area, the confluence of the Meramec River, the Osborne Side Channel, and the Middle Mississippi River National Wildlife Refuge (Meissner Island, Harlow Island and Beaver Island Divisions). These and other undeveloped areas provide key habitat and nesting areas for numerous sensitive species.

There are several federally listed threatened and endangered or proposed species plus other protected species such as migratory birds with the GSL Sub-Area. The shoreline trees may serve as day or maternity roosts for the federally listed endangered Indiana bat (*Myotis sodalis*). Shoreline trees and island trees may be used by high numbers of colonial waterbirds for nesting such as herons or egret rookeries. The grassy floodplain areas may support the federally listed threatened decurrent false aster (*Boltonia decurrens*). The sandy beaches and sand bars may be used for nesting habitat by the federally listed endangered least tern (*Sterna antillarum*) along with other migratory birds. The federally listed pallid sturgeon (*Scaphirynchus albus*) is found in the Mississippi River throughout the GSL-Area. The shovelnose sturgeon (*Scaphirynchus platorynchus*) is a federally listed threatened species because of its similarity of appearance to the pallid sturgeon. The shovelnose sturgeon and pallid sturgeon use the same habitats within the Mississippi River. (This paragraph might do with the species names removed)

The Chain of Rocks located just north of the City of St. Louis in the natural channel of the Mississippi River provide spawning grounds for sturgeon species and large numbers of sturgeon congregate during certain times of the year here from places as far away as Memphis, Tennessee. The mouths of tributary rivers, side channels, and chutes along the Mississippi River in the GSL-Area serve as fishery including sturgeon nursery areas or locations to avoid high flows during flood events.

River substrates in the GSL-Area that are stable or rocky may also contain mussel beds. The federally listed spectaclecase mussel (*Cumberlandia monodonta*) prefers to live within the spaces between rocky substrates.

Valuable river habitats are also found in the Sub-Area. Important fish habitats exist there and in the few side channels, as well as in some altered parts of the Mississippi River. These include the Cahokia Chute and a restoration area above the Merchant Bridge near river mile 183.

There are at least 12 public and industrial (drawing at least 1 million gallons) water intakes along the Mississippi River within the Sub-Area. In the event of a spill, water providers should be notified. Notification will normally be sufficient, but providers may request that protective actions be taken to protect the water intakes.