Recovery and Containment Plan

Hattiesburg Derailment Drill
Hattiesburg, Forrest County, Mississippi

CN

August 19 2015
5551 Corporate Boulevard Suite 200 Baton Rouge Louisiana 70808
071865 | 00 | Report No 3

Table of Contents

Figure Index

Appendices

1. Introduction

This Recovery and Containment Plan is designed to aid in the deployment and management of boom materials, construction of berms, recovery of released product, and disposal of released product in the response to the CN train derailment on September 14, 2015, near Hattiesburg, Mississippi. On September 14, 2015, railcars being transported by CN derailed adjacent to and in the Bouie River near the town of Hattiesburg, Mississippi (Site). A vicinity map of the Site is provided as Figure 1. Of the 20 derailed railcars, four breached and leaked a portion of its contents (Bakken crude oil) onto the CN right-of-way, adjacent railroad ditches, in and the Bouie River (see Figure 1). The released material is insoluble in water and has a low density; therefore the majority of the material will be contained with berms, containment boom, and/or underflow dams and recoverable with containment and recovery operations. Berm/boom deployment and management will take into account the chemical and physical properties of the material released. This plan will include a map of the locations of current containment boom placement and recovery zones located throughout the release area (see Figure 2). Appendix A includes photographs of containment and recovery devices that may be used during the recovery and remediation phases.

2. Berm Construction and Materials

Berms and underflow dams will be constructed with soil that is judged to be reasonably impervious to the water from the ditch and the released product. Materials such as sand, and larger rock should not be used due to the ease with which water and the released product are able to flow through these materials. A soil with a high amount of clay is ideal for berm and underflow dam construction.

Where applicable, soils from the Site will be used to construct the berms and underflow dams. This is done to aid in repair of the berm and dams due to erosion and break through. Heavy machinery, such as a trackhoe or backhoe will be utilized to build and compact the berms and dam.

Care will be taken when constructing underflow dams in relation to the sizing, number, depth and orientation of the flow through tubes. These tubes, which are typically Poly-vinyl Chloride (PVC) or corrugated metal culverts, are to be angled upward facing downstream with the upstream ends being set at sufficient depth to allow for water to flow through the tubes but to restrict the movement of the released product at the top of the water column. These tubes will be surrounded by underflow dam construction material to keep the tubes from shifting or moving with increased flow or pressure.

3. Berm Construction

Berms will be constructed at locations where access to the ditch, flow, and natural barriers are most conducive to the containment and recovery of the released product. Two types of berm to be constructed are:

- Containment Berm - low to intermittent flow and overland flow pathways, also used to close off oxbows and tributaries.
- Underflow Dam - low and medium flow ditch segments and impoundments (may be constructed to help control increased surface water runoff during rain events).

- The locations will be identified and stakeholders related to the berm development, including landowners, regulatory agencies, and response companies, will be communicated with regarding the size, location and other geographic conditions of the berms. All berm and underflow dams will be constructed to minimize damage to natural resources and will be constructed in a manner which will allow response crews to dismantle and de-construct without permanent damage to the drainage feature or surrounding lands.

4. Containment of Released Product Within The Bouie River

Containment boom will be utilized within the Bouie River to prevent the downstream spread of released product as shown on Figure 2. The containment boom will be positioned in areas with adequate access for recovery operations. These areas will also be positioned where the flow of the Bouie River is relatively low, this will ensure that bypass is minimized and entrainment does not occur.

5. Recovery of Released Product

Released product will be contained on-Site and managed in recovery zones as shown on Figure 2. Recovery zones have been established to reduce the footprint of environmental impact and facilitate recovery with vacuum trucks and or skimmers. Vacuum trucks and/or skimmers will be utilized at each recovery zone to remove released materials. Recovered product will be placed into on-site frac tanks for subsequent characterization, disposal, and/or recycling.

In addition, absorbent pads will be used to aid in the collection of released product. Once absorbent pads are saturated with product, they will be placed into bags and transported to on-Site roll off boxes for storage until they can be characterized and transported for disposal.

6. Contingency Plans

The Site will be equipped with 20 extra frac tanks to contain impacted stormwater, runoff, and product. In addition, trailers with absorbent boom have been staged for potential deployment to assist in recovery. Also, additional native soils can be used to strengthen the existing berms to control increasing water levels, or underflow dam construction can be implemented.

7. Berm Maintenance

Berms and underflow dams will be inspected during each operation period. Observations of effectiveness, break through, saturation of the construction materials, effectiveness of the underflow system, and water pressure will be documented. Modifications and repairs will be made as necessary.

8. Boom and Berm Disposal and De-Construction

Upon completion of the response or when granted permission by the regulatory agencies responsible for the removal of the released materials, all booms and berm will be removed from the ditches and other drainage features. Berms and sorbent boom needed to control terrestrial sources or drainage will be kept in place until regulatory approval for removal is granted.

All sorbent boom removed from the Site drainages and ditches will be placed into heavy gauge plastic bags (i.e., drum liners or contractor bags) and will be disposed of at an off-Site location according to applicable state and federal regulations.

Berms and underflow dams will be disassembled using heavy machinery. All recovery zones will be restored to preexisting conditions following the completion of remediation activities. Care will be taken to minimize the impacts to the ditch banks and channel. Final disposition of the construction materials will be made according to stakeholder wishes.

9. Stormwater Collection, Discharge, and/or Disposal

In the event of rainfall at the Site, stormwater will be collected in clean vacuum truck(s) from the Site ditch(s) and impacted areas. Following the collection process, the stormwater will be stored in clean frac tank(s) on-Site pending further disposition. Water samples will be collected and analyzed for the constituents listed in Table 1. During water sampling activities, water quality parameters will be collected using a calibrated Horiba water quality meter.

Once received, analytical data will be compiled into a table and reviewed. If analytical data indicates that all the aforementioned constituents are below their applicable discharge limits, a discharge authorization will be requested. If the analytical data indicates that the aforementioned constituents are above their applicable discharge limits the stormwater will be profiled and transported to an approved disposal facility or treated on-Site, in an emergency situation, by activated carbon filtration. Stormwater will not be discharged without prior written approval from the governing agencies.

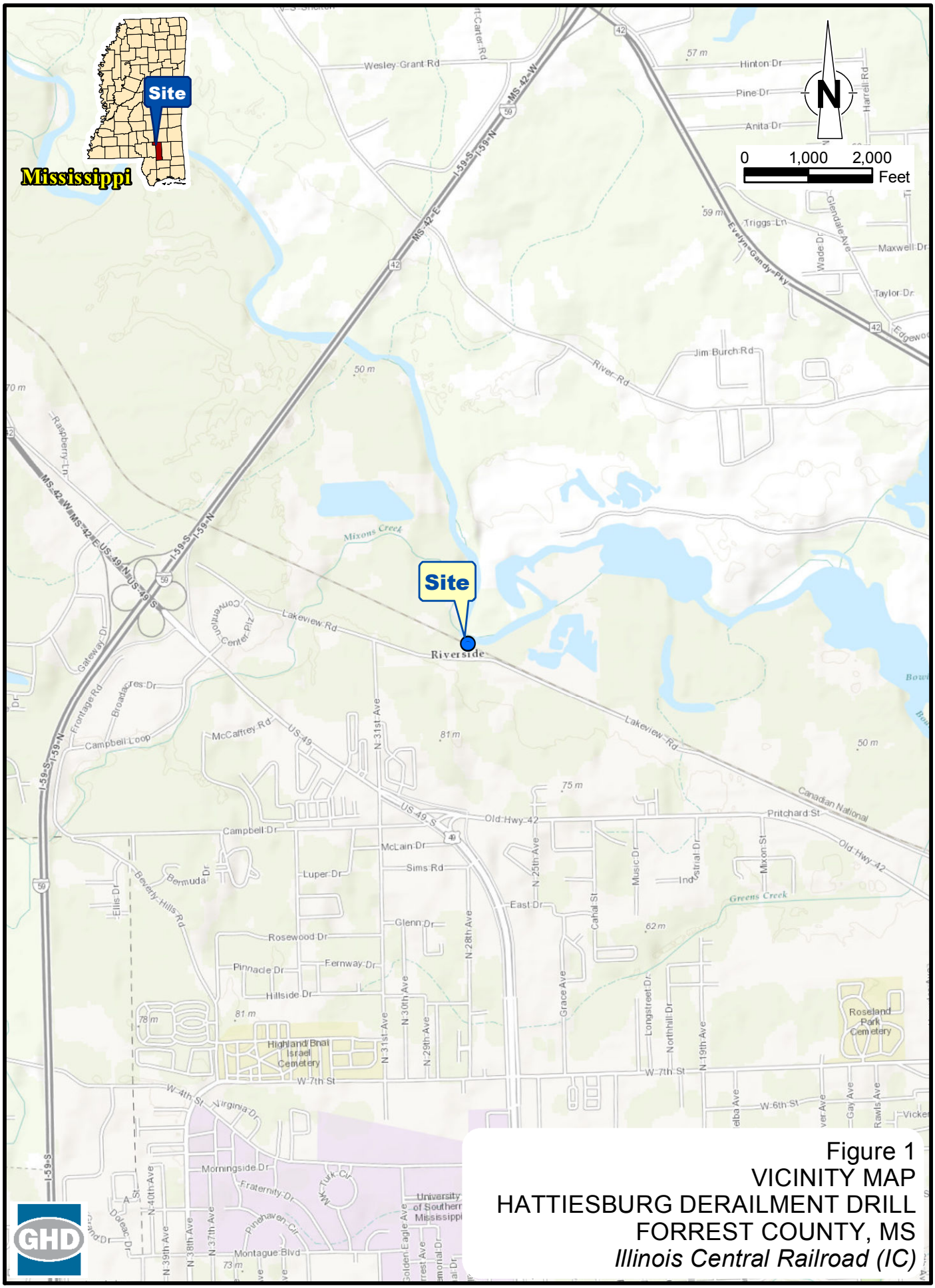

Figure 1
VICINITY MAP
HATTIESBURG DERAILMENT DRILL
FORREST COUNTY, MS
Illinois Central Railroad (IC)

RE: Esri World Topographic Map.

7/10/2015

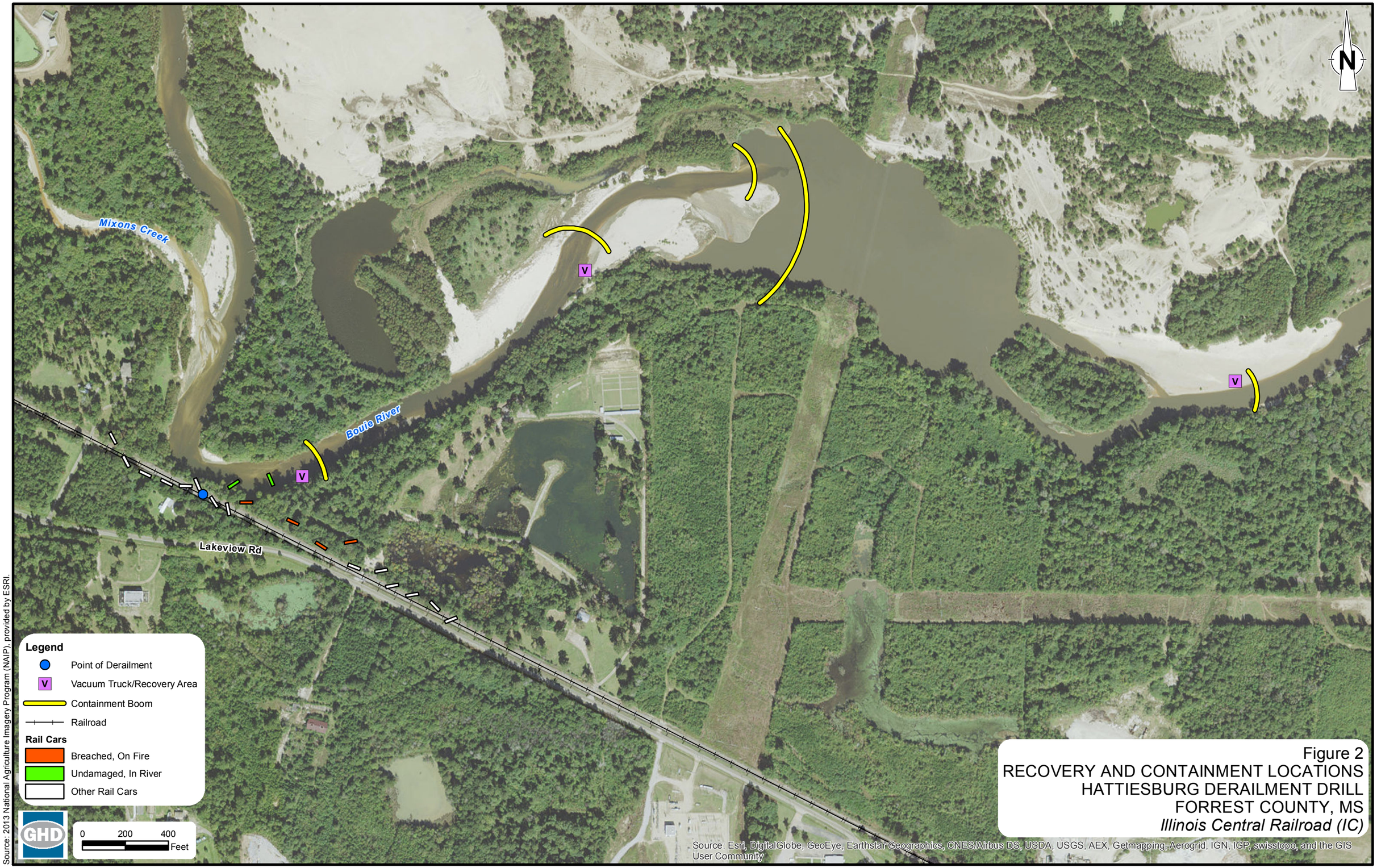

Figure 2
RECOVERY AND CONTAINMENT LOCATIONS
HATTIESBURG DERAILMENT DRILL
FORREST COUNTY, MS
Illinois Central Railroad (IC)

71865-00(000)PR-BR004 7/14/2015

Table 1

Proposed Laboratory Analyses,
Sample Containers, Sample Preservations, and Holding Time Periods
CN-Hattiesburg Derailment Drill
Hattiesburg, Mississippi

Environmental Media Sampled	Analyses	Method	Sample Containers	Sample Container Preservative	Maximum Holding Time	Notes
Surface water	TPH Fractions-Brownfield list*	MADEP	Two 1 L amber glass	HCL	14 days	Fill completely
	(see Appendix A)		Three 40 mL glass			
	PAHs-Brownfield list	SW-846 8270 C/D	1 L amber glass	None	7 days	Fill completely
	(see Appendix A)					
	GRO/DRO	SW-846 8015B	Two 1 L amber glass	None	7 days	Fill completely
			Three 40 mL glass	HCL		

Notes:
H_2SO_4 - Sulfuric acid
HCL - Hydrochloric acid
MADEP - Massachusetts Department of Environmental Protection
PAH - Polycyclic Aromatic Hydrocarbons
SM - Standard Method
SW-846 - The United States Environmental Protection Agency, Test Methods for Solid Waste
TPH - Total Petroleum Hydrocarbons
*Extra volume will be collected for possible analysis for TPH Fractions-Brownfield list.

Appendices

Appendix A
Containment and Recovery Devices

Photo 1 - Photograph of installed absorbent fence.

Photo 2 - Photograph of installed containment boom.

Site Photographs

Photo 3 - Photograph of drum skimmer for product recovery.

Photo 4 - Photograph of installed absorbent material and hay wattles.

Site Photographs

Photo 5 - Photograph of installed absorbent material and hay wattles.

Photo 6 - Photograph of installed underflow dam.

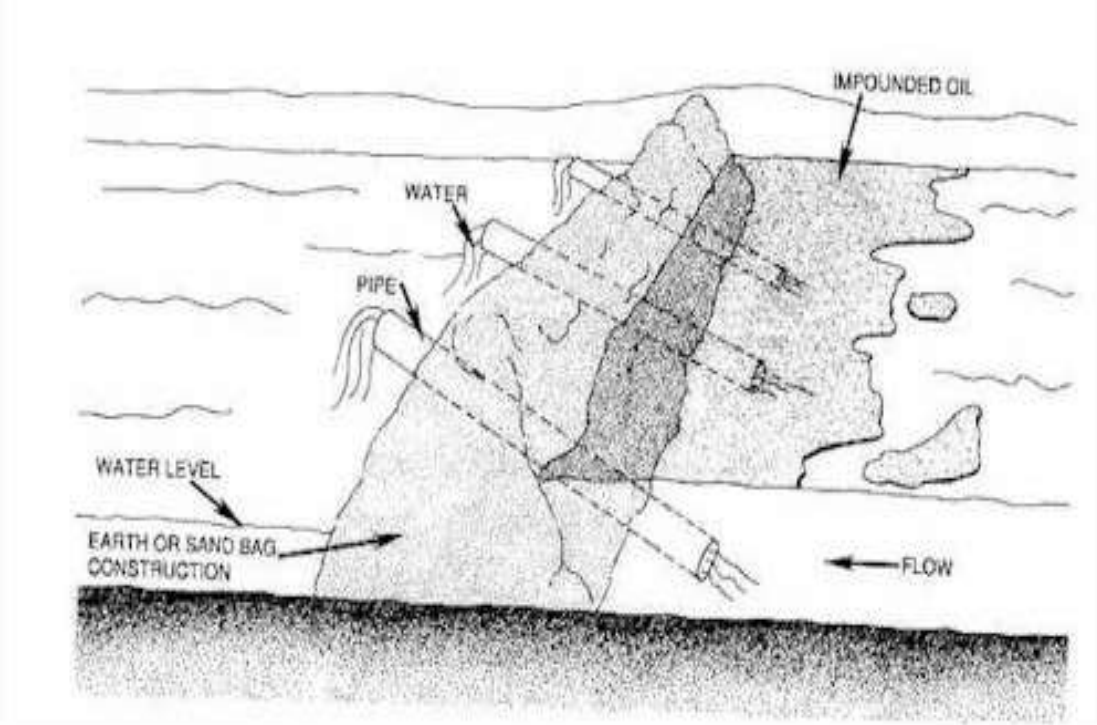

Photo 7 - Construction diagram of underflow dam.