
Enbridge Energy, Limited Partnership
(Enbridge) Marshall Pipeline Release

Remediation Plan for Downstream
Impacted Areas

July 29, 2010

Prepared by URS Corporation

**ENBRIDGE MARSHALL RESPONSE TO PIPELINE RELEASE
REMEDATION PLAN FOR DOWNSTREAM IMPACTED AREAS
July 29, 2010**

The Enbridge petroleum pipeline in the vicinity of Marshall, Michigan experienced a release of crude oil on July 26, 2010. Two main areas have been impacted by this release and include the upstream release area and the downstream release area. The upstream release area is a lowland low area with marshy terrain , and the downstream areas include impacts to bank and in river areas. This work plan titled “Remediation Plan for Downstream Impacted Areas” will address the bank and in river areas. A separate document titled as “Source Release Area Remediation Plan” will address the source area.

DOWNSTREAM IMPACTED AREA REMEDIATION OVERVIEW

Downstream impacted areas will be assessed and then appropriate remedial responses will be implemented. Aerial photography and visual surveys will be conducted on a regular basis during the product recovery efforts to document impacted areas downstream of the source area. Those bank and in river areas found to be adversely impacted may require a combination of methods, possibly including low pressure rinsing and/or vegetation cutting and bagging. Any removed vegetation will be managed as required by USEPA and disposed of at a USEPA approved disposal facility.

The sequencing and scheduling of the bank and sediment removal process will be driven by decisions made in the field based on existing site conditions as they are encountered during the phased assessment work described in this workplan.

SITE ASSESSMENT

Based on the recovery phase aerial photo documentation and visual inspections, those areas showing where free oil or sheen is evident will be prioritized based on location and volume, and then addressed.

IMPACTED AREA PREPARATION

Subsequent to mobilization to the site, the following preparatory activities will take place prior to the initiation of sediment removal:

1. **Pre-removal Survey:** The removal contractor personnel will evaluate existing data from the area and familiarize themselves with current site conditions by conducting their own on-site survey of the site to acquire site-specific data.
2. **Maintenance of Existing Boom and Skimmer Operations:** Areas to be rinsed will have an existing boom and skimmer system inspection to ensure that freed residual oil will be captured.

REMEDIAL ACTIONS

To facilitate the riverbank remedial Enbridge's contractors may employ the following remedial actions:

1. **Low Pressure Rinsing:** Impacted riverbank and vegetation will be rinsed with a land or boat based river water low pressure rinse,. Work will be performed in an upstream to downstream progression.
2. **Vegetation Bagging:** In areas where rinsing is difficult or impracticable, direct cutting and bagging of affected vegetation may be employed. Bagged vegetation will be characterized and disposed at a USEPA acceptable facility. This will entail cutting vegetation above the root mass to deter erosion and allow the existing plants to regenerate.

POST REMEDIAL ASSESSMENT

The effectiveness of the cleaning will be assessed as the completion of areas progresses downstream. Areas still showing visual impacts will be re-rinsed. For those areas continuing to show signs of impact, further evaluation, which may include sampling will be conducted.

Enbridge believes minimum disturbance of the river banks and beds are in the best interests of the environment. Therefore, Enbridge proposes intrusive disturbance of the river banks and beds will only be conducted if sample results indicate there will be an adverse affect that is more detrimental than intrusive remedial techniques. If additional remedial measures are nessesary, such as excavation, appropriate mitigative measures will be employed. Enbridge will communicate analytical results to the EPA on a regular basis.

POST REMEDIATION

If additional investigation/remedial action is warranted, any necessary site specific action plan will be developed and submitted to USEPA for review and approval.

If intrusive remediation is required soil and/or ground water samples will be collected to verify that remediation of the Source Area has been completed. The verification samples will be collected following the Michigan Department of Natural Resources and Environment Operational Memoranda *Sampling Strategies and Statistics Training Materials for Part 201 Cleanup Criteria*, dated 2002. The samples will be collected and analyzed according to the Sampling and Analysis Plan.

DEMOBILIZATION

Equipment requiring decontamination will be appropriately decontaminated by washing, and demobilized from the project site. All decontamination water will be disposed at a USEPA approved disposal facility.