Approval Pending



# Enbridge Line 6B MP 608
# Marshall, MI Pipeline Release

## Sediment Poling Standard Operating Procedure

**Prepared for United States Environmental Protection Agency**

**Enbridge Energy, Limited Partnership**

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FIGURE

## LIST OF ACRONYMS

| | |
|---|---|
| GPS | Global Positioning System |
| HASP | Health and Safety Plan |
| SOP | Standard Operating Procedure |

## 1.0 SCOPE AND METHOD SUMMARY

This Standard Operating Procedure (SOP) describes the basic techniques and general considerations to be followed for conducting poling of sediments. For the purposes of this SOP, sediment is defined as soil, sand, silt, clay, organic matter, or other materials that accumulate on the bottom of a water body (U.S. EPA, 1998). The specific details of poling locations are dependent upon local conditions as well as the purpose of the poling.

Poling generally involves the measurement of sediment and water characteristics using specialized tooling designed for the task. Specific field conditions such as location, water depth and temperature, sediment thickness and temperature, and a qualitative determination of oil sheen and globule coverage over a specified surface area are recorded.

It is expected that the procedures outlined in this SOP will be followed. Procedural modifications may be warranted depending on field conditions, equipment limitations, or limitations imposed by the procedure. Substantive modification to this SOP will be noted in task-specific work plans or on Field Modification Forms, as appropriate, and will be approved in advance by the Task Manager. Deviations from the SOP will be documented in the project records and in subsequent reports.

## 2.0 PERSONNEL QUALIFICATIONS

Poling is a relatively involved procedure requiring training and a variety of equipment. It is recommended that initial poling be supervised by more experienced personnel.

Field personnel must be health and safety certified as specified by the *Occupational Safety and Health Administration* (OSHA, 29 CFR 1910.120(e)(3)(i)) to work on sites where hazardous materials may be present.

It is the responsibility of the field personnel to be familiar with the procedures outlined within this SOP, with site specific procedures, the *Health and Safety Plan* (HASP) (Enbridge, 2012), and work plans under which the work will be conducted. Field personnel are responsible for data collection, decontamination of equipment, and proper documentation in the field logbook, field forms, and/or an electronic data collector such as the Leica®, Trimble Yuma® or equivalent (as appropriate).

## 3.0 HEALTH AND SAFETY

The health and safety considerations for the work associated with this SOP, including both potential physical and chemical hazards, are addressed in the site specific HASP. All work will be conducted in accordance with the HASP.

## 4.0 INTERFERENCES

Potential interferences could result from cross contamination between poling locations. Minimization of potential cross contamination will occur through the following:

- Avoidance of material (e.g., suspended sediment) that is not representative of the medium to be evaluated (this will be accomplished by performing poling in a downstream to upstream approach within a focus area).

## 5.0 EQUIPMENT AND SUPPLIES

The following equipment list contains materials which may be required to complete the procedures contained in this SOP. Not all equipment listed below may be necessary for a specific activity. Additional equipment may be required, pending field conditions or as specified in a work plan.

- Depth of water measurement/agitation pole (aluminum pole with a 8-inch diameter disk attached to one end),
- Sediment measuring pole (aluminum pole without a disk attached),
- Equipment decontamination supplies,
- Health and safety supplies (gloves, personal flotation devices, etc., as required by the HASP),
- Waterproof marker pens (Sharpie® or similar),
- Global Positioning System (GPS) unit,
- Electronic data collector,
- Field logbook,
- Digital camera, and
- Access to a boat when required for transportation.

## 6.0 METHODS

### 6.1 Poling Procedures

Water depth data shall be collected using a 8-inch diameter disk attached to the end of an aluminum pole approximately 2 inches in diameter marked at 0.1-foot intervals. At each poling location, the disc shall gradually be lowered to the top of the sediment bed, and the depth from the water surface to the top of soft sediment (water depth) shall be recorded to the nearest 0.1-foot.

Soft sediment thickness data shall be measured using a pole without a disk and marked at intervals of 0.1-foot. The pole shall be pushed vertically through the sediment until advancement is restricted. The difference between the depth to sediment surface (water depth) and maximum poling depth into the soft sediment shall determine the soft sediment thickness at each location. A description of the general sediment type shall be documented based on the poling results (e.g., soft sediment – silt over sand). An experienced poler can distinguish the difference between soft sediment, sand, and gravel by the feel of the sediment and the sound from the pole.

An approximate determination of the relative amount of oil/sheen created by sediment agitation at each poling location shall be made by using the pole with a 8-inch diameter disk to agitate the soft sediment. After agitation, the amount of oil/sheen observed at the water surface, within a square yard area, shall be described using the same categories as the 2011 field season (heavy, moderate, light, or none). These categories are outlined in the attached *Submerged Oil Field Observation Flow Chart* (*Figure 1*). If 'moderate' or 'heavy' submerged oil sheen/globules are observed, the area shall be delineated with additional poling. The poling teams shall work away from the 'moderate' or 'heavy' location until they have poled either a 'light' submerged oil classification, or no ('none') submerged oil.

A GPS unit shall be used to document the coordinates for each poling location. All poling locations shall be surveyed during the project to the extent practicable using a differential GPS unit with sub-meter accuracy. The horizontal coordinate system shall be the Michigan State Plane Coordinate System, South zone, referenced to the North American Datum ("NAD") 83, in international feet.

All poling activities shall be conducted while the measured temperature of both sediment and water is above 60° F. As such, sediment and water temperature data shall be collected during poling activities as thresholds for data reliability are approached.

### 6.2 Access to Poling Locations

Poling locations are presented in each specific work plan. A boat will be needed to pole most locations on ponds and the river. When boats are used for poling, health and safety procedures as described in the HASP must be followed. Wading to locations in the Kalamazoo River may be considered, but is not the preferred method. If it is necessary to wade into the water body to perform the work, the worker shall take care to minimize disturbance of bottom sediments and must enter the water body downstream of the poling location.

### 6.3 Poling Location

Poling locations will be identified with a GPS unit as discussed in *SOP EN-104 – Survey* (Enbridge, 2011a). Pre-determined GPS identification numbers and coordinates will be used to determine the correct poling placement whenever possible. The poling location must be maintained while poling from boats. The use of anchors and other stabilizing devices may be required to maintain a consistent poling location.

### 6.4 Equipment Decontamination

Reusable equipment shall be decontaminated in accordance with *SOP EN-105 Decontamination of Field Equipment* (Enbridge, 2011a). Investigation derived waste generated from the effort (gloves, disposable sampling equipment, decontamination water, etc.) shall be appropriately containerized and transported to the onsite collection area for appropriate disposal per *SOP EN-106 Investigation Derived Waste Management* (Enbridge, 2011a).

## 7.0 DATA AND RECORDS MANAGEMENT

The data associated with poling locations may be contained in the following:

- Field logbook,
- Sample collection records,
- Electronic data collection (Leica® ,Trimble Yuma®, or equivalent),

- Field Modification Forms (used prior to field work, when required), and
- Nonconformance Records (used after field work, when required).

The following SOPs describe the data collection and record management procedures that should be followed as part of the sediment sample collection process:

- *SOP EN-101 Field Records* (Enbridge, 2011a),
- *SOP EN-104 Survey* (Enbridge, 2011a),
- *SOP EN-105 Decontamination of Field Equipment* (Enbridge, 2011a), *and*
- *SOP EN-106 Investigative Derived Waste Management* (Enbridge, 2011a).

## 8.0 REFERENCES

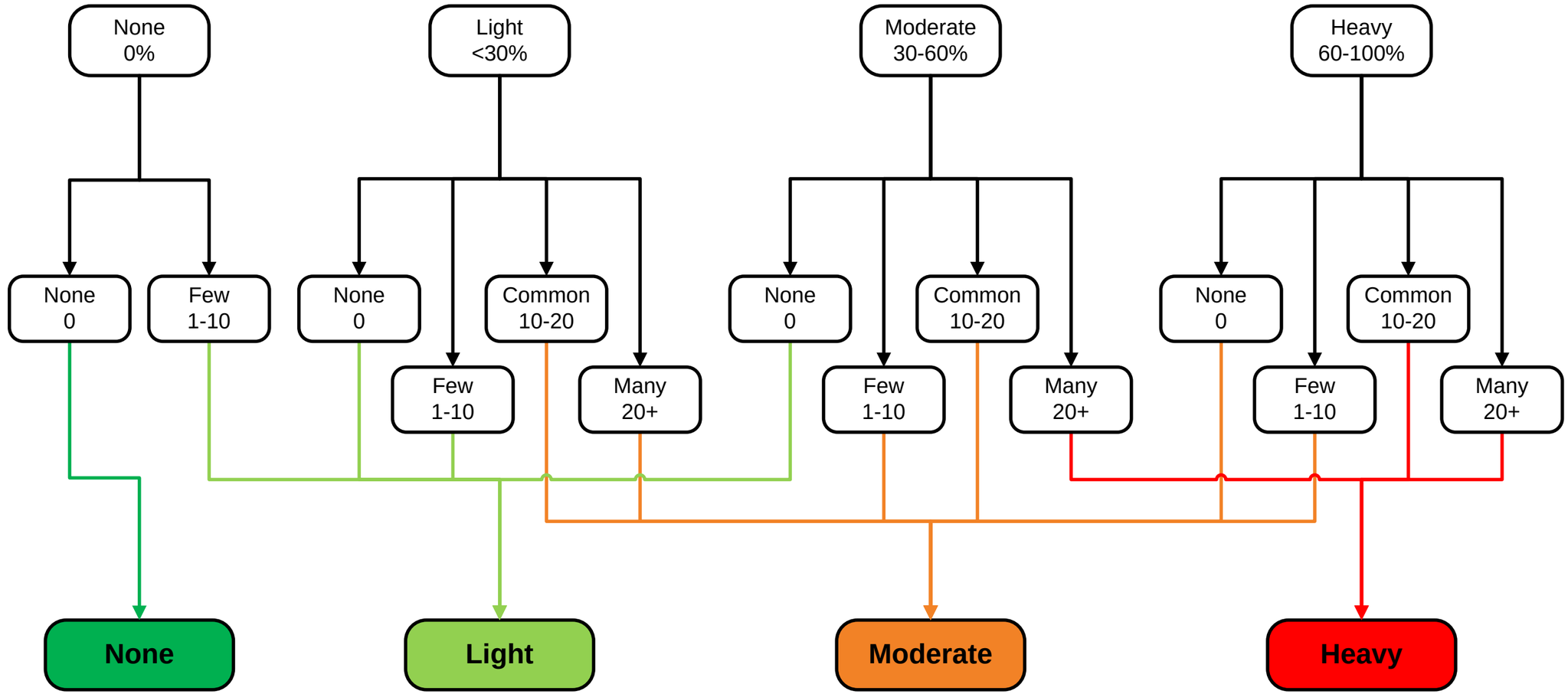
Enbridge, 2011a. Enbridge Line 6B MP 608 Pipeline Release; Marshall, Michigan*; SOP EN-101 –Field Records; SOP EN-104–Survey; SOP EN-105– Decontamination of Field Equipment; SOP EN-106 – Investigation Derived Waste Management*.

Enbridge, 2012. Enbridge Line 6B MP 608 Pipeline Release; Marshall, Michigan*; Health and Safety Plan* (HASP)*. v. 6.2.* April 17, 2012.

*U.S. EPA. 1998. EPA's Contaminated Sediment Management Strategy. U.S. Environmental Protection Agency, Office of Water, Washington, DC. EPA 823/R-98/001.*

**Figure**

# Submerged Oil Field Observation Flowchart




Notes:
1. Percent coverage per square yard
2. Number of globules per square yard

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|---|---|---|
| ENBRIDGE | | FIGURE 1<br>SUBMERGED OIL FIELD<br>OBSERVATION FLOW CHART |
| Drawn: TT 5/4/2012 | | |
| Approved: DD 5/4/2012 | | ENBRIDGE LINE 6B MP 608<br>MARSHALL, MI PIPELINE RELEASE<br>ENBRIDGE ENERGY, LIMITED PARTNERSHIP |
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