
9.0 Monitoring and Contingency Plans

9.1 MONITORING

The primary objective of compliance and effects monitoring is to ensure mitigation measures are effectively implemented and to measure the effects of activities associated with development on environmental and socio-economic features. Ultimately, the knowledge gained from monitoring is used to avoid or minimize problems during subsequent construction projects.

Previous pipeline construction experience and review of post-construction monitoring reports from other pipeline projects indicates that effects from pipeline construction are, for the most part, temporary. The mitigation measures to reduce and avoid effects are well known and have been shown to be effective. With this in mind, Enbridge should adhere to the following general monitoring practices:

- Trained staff should be on-site to monitor construction and should be responsible for ensuring that the mitigation and monitoring requirements within this report are executed effectively. Enbridge should implement an orientation program for inspectors and contractor staff to provide information regarding Enbridge's environmental program and commitments, as well as Safety Education measures;
- Mitigation recommendations made in this report should be incorporated into the contract specifications;
- Contact between landowners and company liaison should be maintained to ensure that the concerns of landowners are quickly addressed; and,
- An inspection of the route should be conducted approximately one and two years after construction to determine whether any areas require further rehabilitation.

9.1.1 Watercourse Crossing

An Environmental Inspector should be on-site during watercourse crossings to ensure adherence to specifications and site plans. In particular, the Environmental Inspector should ensure that pre-construction preparation is complete prior to commencement of any work and that the floodplain conditions are restored to preconstruction conditions. The Environmental Inspector should be responsible for monitoring weather forecasts prior to the crossing.

Follow-up inspections, one year after construction following spring run-off, should be completed to review effectiveness of the bank and slope re-vegetation program, to check bank and slope stability and to ensure floodplain drainage has been maintained. Appropriate remediation measures should be completed as necessary, and additional follow-up monitoring should be conducted.

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9.1.2 Municipal Roads

Municipal roads affected by pipeline construction should be restored to their pre-construction conditions to the satisfaction of municipal engineers. Road Superintendents should be given an opportunity to inspect any repairs or modifications. Once re-established, the crossing location of roads should be monitored following heavy rain events and a year after construction following spring runoff, to ensure no road subsidence or major rutting has occurred and that the drainage system is functioning properly.

9.1.3 Vegetation

During pre-construction clearing and construction, the Environmental Inspector should ensure that the contractor respects the limit of clearing and does not damage adjacent vegetation. The Inspector should identify any trees that pose a potential hazard and that might require removal.

Establishment of vegetative cover should be monitored. Sediment control fencing and other protective measures should be retained in place until cover is fully established.

A year following construction, new woodlot edges should be inspected for any potential hazard trees. Planted trees should also be inspected for survival; in areas of severe dieback or in areas important environmental functions (e.g. riparian or slope cover), dead and diseased trees should be replaced. Enbridge's inspection program should include annual monitoring until a "free-to-grow" condition is reached.

9.1.4 Landowner and Community Relations Program

Social effects should be monitored through a communications program. As part of this program, all residents and absentee landowners affected by construction should be notified in advance of construction activities in their area. The notification should indicate the name and contact number of Enbridge's Project Manager and should invite the resident or landowner to contact the Chief Inspector should concerns arise.

The Chief Inspector should file a report detailing time and date of any call, the nature of the concern, the corrective action taken where appropriate, and the time and date of follow-up contact. The Project Manager should establish contact with the local police force indicating the nature of the work to be undertaken, traffic management plans, and the size and origins of the workforce. In this manner, any traffic and security concerns will be brought directly to the attention of Enbridge's Project Manager for corrective action, and a report will be filed.

Following completion of construction, Enbridge should contact all residents along the easement to continue ongoing communications where necessary. During the first two years, particular attention should be paid to monitoring and documenting any effects associated with construction and operation of the pipeline.

9.2 CONTINGENCY

Contingency planning is necessary to prevent a delayed or ineffective response to unexpected events or conditions that may occur during construction of the proposed pipeline. An essential element of contingency planning is the preparation of emergency plans and procedures that can be activated if unexpected events occur. The absence of contingency plans may result in short or long term environmental effects and possibly threaten public safety.

Unexpected events requiring contingency planning that may occur during construction of any pipeline include: extreme climatic events, changes to the construction schedule and human error. Although these problems are not anticipated to occur during construction, Enbridge and the pipeline contractor should be prepared to take appropriate action quickly. The Environmental Inspector should identify situations where contingency plans should be implemented. The Contractor should also know when to immediately cease operations, for example in the case of watercourse siltation. All staff should be made aware of and know how to implement contingency emergency response measures.

Watercourse Siltation

Even with appropriately installed erosion and siltation control measures, extreme runoff events could result in the collapse of sediment control fencing, slope or trench failures and other problems which could lead to siltation of watercourses. If siltation to a watercourse occurs, construction should cease immediately until the situation is rectified. Immediate action should be taken to install temporary measures to contain the extent of erosion and siltation as quickly as possible. Temporary protection measures such as sediment control fencing, sand bags, riprap, logs or planks should be utilized.

When site conditions permit, permanent protection measures should be installed on erodable surfaces including hydroseeding, erosion control matting, rip-rap, and willow staking. Additional layers of sediment control fencing or a more sturdy type of base fencing may be appropriate in erosion prone areas until vegetative cover is established.

If siltation has occurred, due to a construction related activity (e.g. dewatering), the activity should be halted immediately until the situation is rectified. A supply of emergency materials (*i.e.*, sediment control fencing, rip rap, shovels *etc.*) should be available on-site. The Contractor should be fully prepared to respond quickly to siltation events.

Vegetation Damage

Potential for damage to vegetation situated adjacent to Preferred Route increases during wet soil conditions. In the event of flooding and/or siltation of lands adjacent to the right-of-way, small swales should be hand dug to direct water away from the pipeline easement. In areas where topography will not allow natural drainage, it may be necessary to use pumps to prevent prolonged standing water.

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If the Contractor damages woody vegetation beyond the identified limit of clearing, the Environmental Inspector should assess the damage and recommend appropriate measures. The Contractor should be shown the damage to ensure the problem does not reoccur.

9.2.1 Construction Delays

Delays in the construction schedule may be necessary due to field conditions, work progress or land acquisition issues. To minimize the impact of a construction delay, and if field conditions permit, equipment should be moved and construction should be resumed in a more suitable location. Once field conditions permit, construction should commence or resume at problem areas.

9.2.2 Accidental Spills

During construction, an accidental spill of construction fluids may occur. Fluids may include fuels, lubricating oil and grease, as well as hydraulic fluids. Upon release of a hydrocarbon-based construction fluid, Enbridge should immediately determine the magnitude and extent of the spill and rapidly take measures to contain it. Release of sediment should also be treated as a potential spill depending on the magnitude and extent. All spills should be immediately reported to the Chief Inspector, Environmental Inspector and Enbridge's environmental department. Where an adverse effect may occur as a result of a spill, the MOE Spills Action Center should be notified at 1-800-268-6060.

A Spills Response Plan should be developed by the Contractor, reviewed with staff and posted in site trailers. Appropriate spill containment apparatus and absorbent materials should be available on-site, especially near water or sensitive wells. Staff should be trained in the use of spill containment equipment and materials.

9.2.3 Unexpected Finds**Heritage and Archaeological**

Every reasonable effort should be made to identify archaeological or heritage resources along the Preferred Route prior to construction; however, it is possible that such resources could be encountered along the route during construction. Should buried archaeological material and/or human remains be encountered during construction, construction in the vicinity should cease immediately. The MOC and an archaeologist licensed in the Province of Ontario should be notified immediately. An appropriate site-specific response plan should then be employed following further investigation of the specific find.

Contaminated Sites

Efforts have been made to identify potential sites in the vicinity of the Preferred Route through a review of landfill records and contact with MOE. Through circulation of the ER, the MOE will have further opportunities to review the route in the event that other unknown areas of potential contamination may exist.

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Regardless, the potential still exists for unknown material to be encountered during construction. If evidence of potential contamination is found, such as buried tanks, drums, oil residue or gaseous odour, construction should cease until the source of the material is further investigated. MOE should be notified if the source is not immediately obvious or containable in the opinion of the Environmental Inspector.