

POST ENVIRONMENTAL ASSESSMENT (EA) AUDIT OF MUNICIPAL SOLID WASTE  
LANDFILLS

ASSESSING COMPLIANCE WITH APPROVAL CONDITIONS, EVALUATION OF THE  
EFFECTIVENESS OF MITIGATION MEASURES, AND VERIFICATION OF PREDICTED IMPACTS  
OF THE MERRICK LANDFILL

by

Entehabu Berhe

**Abstract**

This research paper presents the findings of a post-Environmental Assessment (post-EA) audit of a Municipal Solid Waste landfill. The study was conducted in 2002 and examines facility compliance, accuracy of EA impact predictions, and impact management and mitigation issues related to groundwater, surface water, and landfill gas and air quality impacts of the Merrick Landfill in North-Bay, Ontario. The findings are based on monitoring and compliance data from 1995 to 2001 and do not reflect activities before or after this interval.

The research for this project included a literature review of post-implementation follow-up and monitoring studies in environmental assessment, and related environmental applied science and management literature including environmental auditing, geology and hydrogeology, and landfill design and engineering concepts. Also included were project related documents and reports including EA documents, monitoring reports, facility permits, EA hearing submissions and decisions, and other reports on the project prepared by the proponent and the Ontario Ministry of the Environment (MOE). Based on this, the purpose of this paper was to provide an up to date case study that builds on existing post-EA follow-up knowledge by:

- (1) Examining whether the Municipal Solid Waste landfill (MSWLF) operation complied with environmental quality objectives determined through the EA process, and other regulatory instruments and achieved good environmental performance; and
- (2) Comparing actual environmental impacts with predicted impacts.

The results of this study indicated the weaknesses and strengths of the EA predictions, the subsurface investigations and landfill design criteria used, and mitigation measures employed in impact management. The study evaluated the overall performance of the landfill with respect to compliance, effectiveness of the monitoring and impact management measures, and performance of landfill components. It also highlighted the value of post-EA audits in improving the environmental management aspects of the EA.