APPENDIX A: SUMMARY OF KNOWLEDEGE GAPS

	Knowledge Gaps
Local and Regional Impacts	Relationship between peatland type (e.g., bog vs. fen), feature type (e.g., pad vs. road) and direction of water flow relative to the feature on the occurrence of off-site impacts
	Impacts of pads and roads left in place on groundwater, wildlife habitat, wildlife movement and use of the landscape
	Methods that can be used to measure the occurrence and extent of current pad impacts to hydrology, as well as the potential for future impacts
	Cumulative impacts of multiple pads and roads on local and regional peatland hydrology, chemistry, vegetation and greenhouse gas fluxes and the threshold at which cumulative impacts degrade overall ecological function of the region
	Magnitude of carbon emissions released during pad removal (including site access) and associated net environmental "benefit" associated with pad removal vs. leaving the pad in place
	Success rate of pad removal in achieving peatland ecosystem function, ecological land classification (ELC) and the factors and reclamation practices that contribute to success or failure. Specifically: • Extent of peat compression under the pad, and impact of overall thickness and weight of the pad • Extent of peat rebound after pad removal and impact from duration of pad being in place and thickness/weight of the pad • Potential for and risk of minimal peat rebound and the creation of an open water body instead of a site on a trajectory to a functional peatland • Impacts to underlying peat chemistry resulting from the pad material, and how those changes may impact a developing plant community after pad removal
	Cumulative effect threshold based on scientific and geographical approaches to allow a proportion of wetland in a given area to be "lost" without significant degradation of function of the region
Site Specific Considerations	Factors that result in padded sites impacting the surrounding peatland ecosystems in the long term and affect the extent and severity of these impacts
	Effectiveness of partial reclamation activities for alleviating impacts resulting from pads (wellsite and/or access roads) in peatlands
	Likelihood of success for peatland recovery if the pad is removed
	Success rate of pads left in place that achieve and maintain upland ecosystem function and ELC in the long term. Specifically: • Relative importance of factors that influence successful reforestation of pads (e.g., soil quality, topsoil depth, compaction, dispersal vectors, historical revegetation efforts, time, surrounding peatland type, water quality and levels, etc.) • Potential for water table to rise into the root zone over time • Resiliency of upland ecosystems developed on pads left in place
	Factors that result in sustainable forest ecosystem development on padded sites