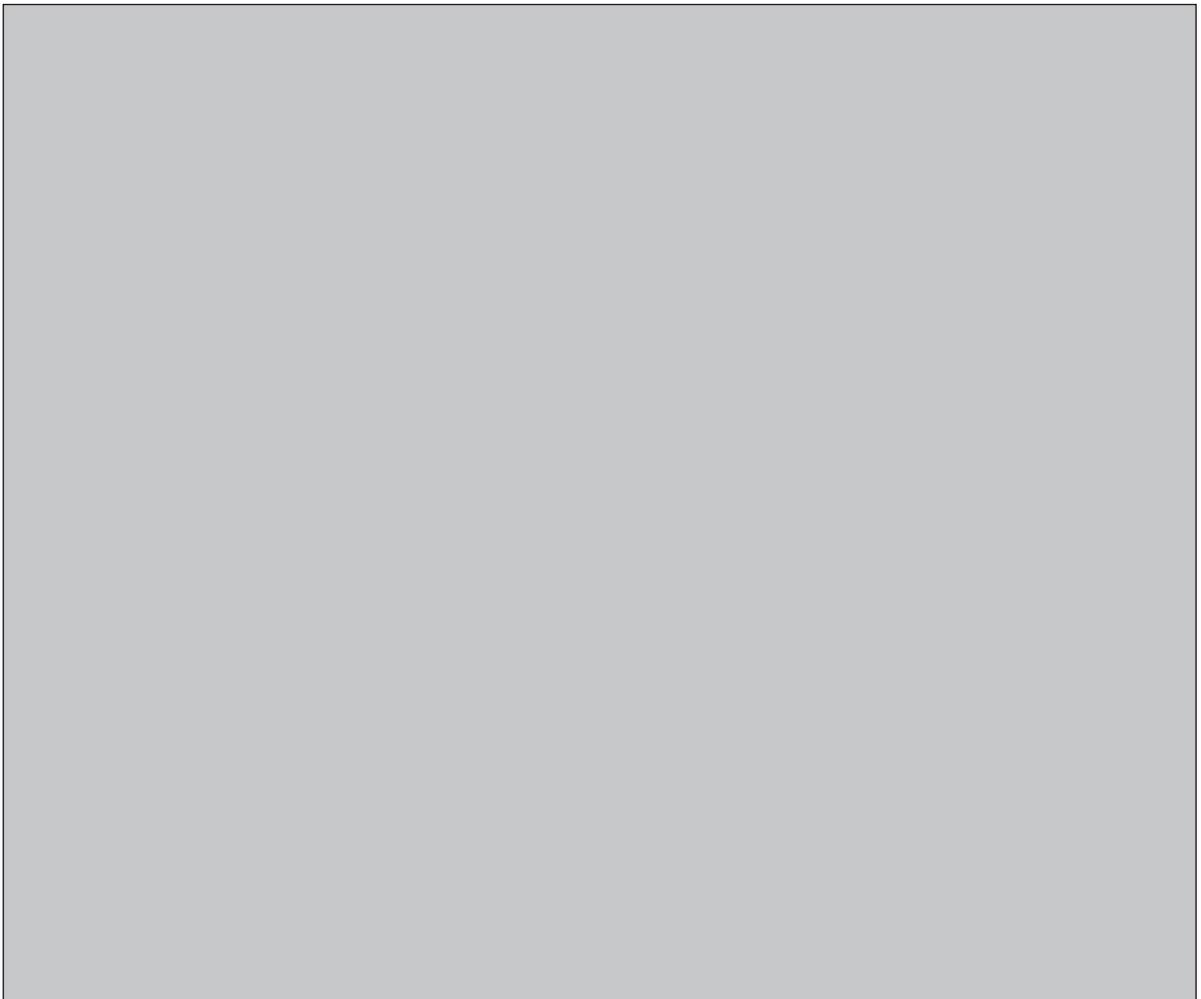


**NWMO BACKGROUND PAPERS**  
**6. TECHNICAL METHODS**

**6-1 STATUS OF REACTOR SITE STORAGE SYSTEMS FOR USED NUCLEAR FUEL**

**EXECUTIVE SUMMARY**

**SENES Consultants Limited**



## SUMMARY

*As mandated by the federal government, the Nuclear Waste Management Organization (NWMO) was established by the utilities that produce used nuclear fuel in November 2002. This organization is in the process of creating a series of background papers, which will provide information to decision makers and the public regarding the management of used nuclear fuel. This background report on reactor site storage of used nuclear fuel in Canada is one of the series of reports being prepared for the NWMO, which will be posted on the NWMO website (<http://www.nwmo.ca/>).*

*Current practice in Canada is to allow used fuel (i.e., fuel which has been irradiated in a reactor) to cool in used fuel bays (essentially water-filled pools) for ten years or more, and then to transfer the fuel to above-ground dry storage. Recent Environmental Impact Statements to assess used fuel dry storage at Ontario Power Generation's Darlington and Pickering (Phase II) sites demonstrate the increasing use of dry storage at reactor sites in Canada.*

*Atomic Energy of Canada Limited (AECL) and Ontario Power Generation (OPG) began to investigate dry storage alternatives in the 1970's. AECL has more than 25 years of experience with dry storage systems. The current design life of dry storage containers is 50 years; however, the actual life of dry storage containers is thought to be 100 years or more. In the event that centralized facilities for the management of used fuel are not available on a timely basis, extended use of dry storage would provide a reliable method of managing used fuel in the longer term. In such an event, regulatory and environmental issues would need to be revisited.*

*While Ontario Power Generation is the largest producer of used fuel, the other nuclear utilities Hydro Quebec and New Brunswick Power also produce significant quantities of used fuel. Additional, but much smaller, quantities of used fuel have been produced from research activities by Atomic Energy of Canada and various research and prototype reactors in Canada.*

*This report provides brief descriptions of used fuel storage systems at commercial reactor power sites in Canada. In addition, selected comments are provided on a variety of environmental and regulatory issues relevant to reactor site used fuel management systems.*