

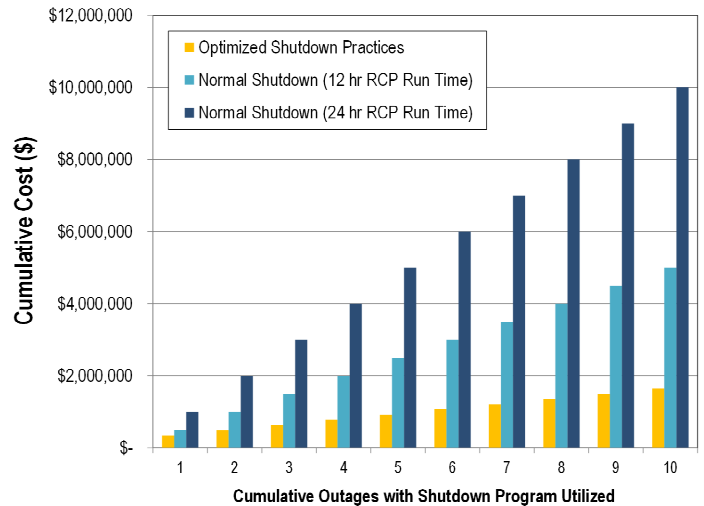
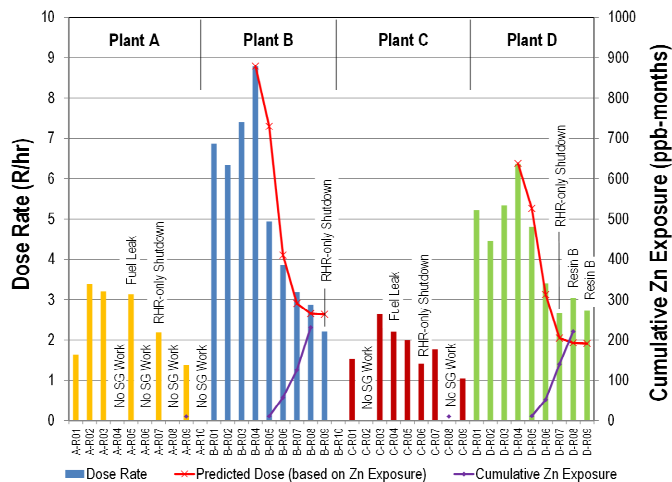
Primary Chemistry and ALARA Assessments

Background

The goals of properly designed primary chemistry and ALARA programs are to ensure material and fuel integrity and minimize radiation exposure to plant workers. However changes in maintenance and operational practices often occur concurrently such that it is difficult to isolate and quantify the effect of individual factors on dose rates, or to determine which practices have the greatest benefit or are economically justifiable. A further complication is that there are often many stakeholders in decisions regarding chemistry and ALARA practices (Chemistry, Rad Protection, Radwaste, Operations, Management, etc.).

Description

To assist plants in objective decision making, DEI offers independent assessments to isolate and quantify the technical/economic merits of various chemistry and ALARA practices. These studies are relatively inexpensive and typically identify opportunities for meaningful technical improvements, shortened outage schedule and/or cost savings. These studies may be performed as **plant-specific or fleet-wide studies for PWR, BWR and CANDU units.**



Example cost/benefit analysis—Optimization of PWR shutdown practices

Typical Assessment Scope

- Chemistry practices and additives (e.g., Zn, noble metals, etc.)
- Resin selection and practices
- PWR shutdown practices and RCP run time
- Plant design and operational practices
- Co sources and transport
- Plant events (e.g., foreign material intrusions)
- Maintenance activities (e.g., fuel cleaning)
- Other plant activities/metrics of interest
- Benchmarking against US and non-US OPEX

Example Results

- Reduced dose rates through improved maintenance and operational practices
- Shortened outage schedule through optimized plant shutdown practices (PWR)
- Cost savings through use of less costly, but technically equivalent resin products
- Reduced radwaste volume and disposal costs through modified filtration practices

Example impact assessment—Effect of individual plant practices on dose rates and other metrics