Calculating Cost Savings from FY19 Pollution Prevention Projects

Purpose: To ensure a standard and credible method is used to compare the cost savings of all pollution prevention proposals, allowing 'apples to apples' comparison of project savings.

Background: Pollution prevention project proposals are sought each year by the Pollution Prevention Council. One of the critical factors in ranking proposals is the financial benefit that will result from implementation. Return on investment (ROI) must be calculated using a standard method to ensure projects are compared fairly.

Method: Payback Period will be the method used to measure financial benefit of project implementation. Projects with the fastest payback of invested funds will be ranked high (considering other criteria). Payback Period will be calculated as follows:

$$\text{Payback Period} = \frac{\text{Total Project Cost}}{\text{Annual Project Savings}}$$

Total Project Cost = all costs for implementation, including capital equipment costs, operating costs, training, installation, etc. Don't forget overhead costs.

Annual Project Savings = all savings that can be documented, including reduced disposal costs*, labor savings, material savings, reduced administrative costs (e.g., for inspections, compliance, etc.)

* "Disposal Cost" is determined by adding actual disposal costs, container costs and transportation costs. It does not include handling or other charges related to operation and management of BNL waste management operations. Cost savings calculated using the "Disposal Cost" listed below are therefore actual cost savings to BNL.

Waste Type	Waste Description	Disposal Cost
Radioactive Liquid	Liquid Low Level Radioactive Waste	$238.00/gal
Radioactive Solid	Sewage Treatment Plant Sludge	$146.00/drum
	Non-compactible LLW	$278.00/cuft
	Compactible LLW	$362.00/cuft
	High Activity LLW	$3,791.00/cuft
Mixed	Lead bricks and metal	$205.00/cuft
	Other Mixed waste	$8000.00/cuft
Hazardous	Drums	$1911.00/drum
	Labpack Hazardous or Industrial	$32.00/pound
	Cylinders: Poison gases	$2,741.00/item
	Explosives	$2,741.00/item
Industrial Bulk waste	Drums	$972.00/drum

EXAMPLE:

A project is expected to cost $20,000 to implement. Equipment costs make up $12,000, installation is estimated at $6,000, and training costs are estimated at $2,000.The project proposes to eliminate 140 gallons (1190 lbs) of hazardous waste that is traditionally managed in small containers (labpack waste). Since the area no longer needs a satellite accumulation area, approximately $2,000 of savings is estimated from reduced oversight and compliance requirements. Additionally, the employees don't require hazardous waste training anymore, which is estimated to save about $400 annually.

Total Project Costs: $20,000
Annual Project Savings: $12,110
(1190 lbs hazwaste)($8.16/lbs) =$9,710 + $2,000 + $400 = $12,110

$$\text{PAYBACK PERIOD} = \frac{\text{Total Cost}}{\text{Annual Savings}} = \frac{\$20{,}000}{\$12{,}110} = 1.65 \text{ years}$$