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Economic Advantages of Super Absorbents in Radioactive Waste Management

The use of a superabsorbent polymer, such as **Waste Lock[®] 770**, in radioactive waste management is a cost effective way to stabilize liquid waste without significantly increasing the waste volume or weight. Because these radioactive waste streams are extremely costly to transport and dispose of, even a small increase in weight or volume can dramatically increase the cost.

Although these polymers are significantly more expensive than “cheap” absorbents such as Bentonite clay or Portland cement, project savings are realized by waste minimization.

Depending on the percent water in the waste, most mineral absorbents will double or quadruple the volume of waste.... One B25 box or 55-gallon drum then becomes two or even four!

The following illustrates the potential savings from using **Waste Lock[®] 770**:

One Cubic Yard of Low Level Radioactive Waste (LLRW)

50% Water/50% Solids

Bulk Density = 2200 lbs/yd³

	<u>Bentonite</u>	<u>Waste Lock[®] 770</u>
Absorbent Needed for One Yard ³	1000 lbs	44 lbs (2% wt)
Absorbent Unit Cost	\$0.12/lbs**	\$2.50/lbs
** Assumes Midwest delivered cost of \$6.00 per 50 lbs bag		
Total Absorbent Cost	\$120.00	\$110.00
Est. Disposal Cost per Yard ³	\$2000/yd ³	\$2000/yd ³
Absorbed Waste to Dispose	2.5 yds ³	1.0 yds ³
Total Cost (inc. Absorbent)	\$5120.00	\$2062.50
Savings from use of Waste Lock[®] 770	\$3,057.50 per cubic yard	