



**ENERGY
NORTHWEST**

Cooling Tower Fill and Drift Eliminator Replacement

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Cooling Tower Function

- ✦ The Cooling Towers Serve the same Function as the Radiator in your Car
- ✦ Both Remove the Unused Heat from Power Production
- ✦ Just like the Radiator in your Car they are Important for Efficient Operation of the Machine

Why Repack

- ✦ Material in Three Towers is Original and Degrading due to Age
- ✦ Material Supports in some Areas have given away (Fiberglass)
- ✦ Material and Supports have been Damaged over the Years due to Ice, Wind, Chemicals, and pH of the Water
- ✦ Fill has been Broken and some has De-laminated





Scope of Project

- ✦ Remove all of the Old Fill and Drift Eliminators and Dispose of Material (Asbestos Cement)
- ✦ Remove Old Fiberglass Fill Supports
- ✦ Install New Fill Support Grids and Fill (New Material is PVC)
- ✦ Install New More Efficient Drift Eliminators (PVC)
- ✦ Repack 3 Cooling Towers, One in Fiscal Year 2010 and Two in Fiscal Year 2011

Tower Fill Material (Each Tower)

- ✦ About 250,000 Splash Bars – 6' Long by 4" Wide
- ✦ Over 2000 Support Grid Sections
- ✦ 21000 Drift Eliminators, 5' by 7", and their Supports (to be removed)
- ✦ The Removed Material has to be Handled as Asbestos
- ✦ About 40 Semi Truck Loads will need Disposal at a Designated Asbestos Landfill



Repacking a Cooling Tower

- ✦ First, the Support Grid is Installed from the Bottom Up
- ✦ The Splash Bars (Fill) are then Installed from the Bottom Up, Inside to Outside and follow the Support Grid Up
- ✦ Then the Drift Eliminators are Installed in Sections that the Fill has been Completely Installed







Cooling Towers Wear Out

- ✦ A Repack is a Normal Process in the Life of a Cooling Tower
- ✦ There are Several Items that can Affect the Longevity of the Fill and Tower
 - Age of material
 - Type of tower
 - Materials used in construction
 - Weather (ice, wind, and, sun)
 - Water Chemistry (chlorine and Ph)
- ✦ Plants of our Generation have or are Currently Repacking Cooling Towers at this Time (River Bend Current)

Cost of Repacking a Tower

- ✦ Estimated Cost is \$2.4 Million per Tower
 - Fiscal Year 2010 – \$ 2.4 Million (one tower)
 - Fiscal Year 2011 – \$ 4.8 Million (two towers)
- ✦ This is based on Previous Costs when the Last Two Towers were Repacked in 2001 and Adjusted for Inflation.
- ✦ Bid will be a Single Bid for both Fiscal Years