



ECOMASS® SHIELDING BLANKETS

Nontoxic Shielding Solutions

When TVA's Sequoyah Nuclear Power Plant needed shielding to protect workers during a sump pump modification, the use of Ecomass® Shielding Blankets was a wise choice. ALARA Engineer, Steve Bradley, had heard about the use of Ecomass® Compounds in a different application at another plant and thought these lead-free materials could be used to provide shielding in a very restricted area at Sequoyah. Like most nuclear power plants these days, Sequoyah did not want to purchase lead to meet its shielding needs and, because of space limitations, other more-traditional shielding materials could not meet the challenge.

An extrusion grade Ecomass® Compound was processed into sheet, 8" wide by 0.125" thick. This sheet was cut into 6 ft. lengths, then two of these sheets were fitted into an inner and outer layer of vinyl-laminated nylon blanket material with grommets every 12". This configuration provided lead equivalent shielding of 0.250" with an overall blanket thickness of only 0.350" - without the lead.

The results speak for themselves. Bradley says, "We had planned for the blankets to reduce the work area dose rates to ~10 mrem/hr. The actual work area dose rates were ~7 mrem/hr. The sump modification took about 1,000 man-hours, equating to about a 3,000 rem unexpected dose savings for this work. Added to the expected savings of 9,800 rem, we achieved a dose savings of 12,800 rem."

Ecomass® Compounds are thermoplastic composite materials that can be injection molded, compression molded, or extruded into sheet for a variety of shielding applications. These materials do not contain lead, lead compounds, or any other materials considered hazardous or toxic by U. S. EPA. More information, including radiation shielding test results, can be found at www.ecomass.com.



Ecomass® Blankets in use at Sequoyah Nuclear Plant