A Powerful Solution for ESW Pipe at Nuclear Power Plants

The degradation of steel pipes used in many Essential Service Water (ESW) systems is a serious concern confronting nuclear power plants today.

- According to the Electric Power Research Institute (EPRI), the physical maintenance of degraded steel water pipe systems, combined with the operational costs of shutting a plant down during repairs, is already costing some nuclear utilities up to $25 million per year. ¹
- Faced with the short- and long-term prospect of continuous pipeline maintenance and shutdowns and the spiraling costs that result, plant operators are discovering a better solution: High Density Polyethylene (HDPE).
- In December 2008, AmerenUE’s Callaway Nuclear Power Plant in Fulton, Missouri, completed the first ever safety-related ASME Class 3 water pipe installation at a nuclear power plant in North America. The material they chose: CONTINUUM™ DGDA-2492N Bimodal HDPE Resin from The Dow Chemical Company (“Dow”).

The Advantages of HDPE

- HDPE pipe is leak-free when produced and installed properly, even at joints, which can be as strong and leak-free as the pipe itself through use of the heat fusion joining technique.
- HDPE is also corrosion and chemical resistant: it does not rust, rot, pit, corrode, tuberculate or support biological growth. (See photo on far left below.)

- It offers seismic resistance, in that it can safely accommodate repetitive pressure surges above its static pressure rating and is well-suited for seismic loading due to its natural flexibility.
- HDPE is easier and more cost-efficient to install than carbon steel.

The Bimodal HDPE Difference – CONTINUUM™ DGDA-2492N Bimodal HDPE Resin

- Meets or exceeds both ASTM PE4710 and ISO PE100 standards.
- 2.5-year pressure listing by the Plastic Pipe Institute (PPI), exceeding the 3-month requirement, at 176°F (80°C).
- >10,000h PENT, more than 20 times better than the most stringent ASTM SCG requirement for PE4710.
- Three times more resistant to Rapid Crack Propagation (RCP) than the most demanding ISO PE100 requirement, if measured by S-4 critical pressure, and RCP failure does not occur at temperatures above -17°C (~0°F) as measured by S-4 critical temperature.
- Can be used for making heavy-wall pipe up to at least 6 inches thick.

Not Your Typical Resin Supplier

- Dow is the #1 polyethylene producer in the world.
- More than 25 years in the pipe industry.
- Focused on innovation and advancing the performance of polyethylene in pipe.
- Technical assistance available throughout the process, including testing and qualification.

Want to know more?

Visit the Dow web site or talk with a Dow technical representative to find out if CONTINUUM™ DGDA-2492N is the right material for your ESW pipe system.

www.dowcontinuum.com
800.441.4369

¹ Source: EPRI 2009 Portfolio, Balance of Plant Corrosion
For more information on products, innovations, expertise, and other services available to you from Dow’s Plastics business group, visit www.dowplastics.com and choose your region, or contact us as indicated below.

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Published September, 2010. Printed in USA.
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