



## Response to Inquiry Community Engagement Panel Regular Meeting October 9, 2014 Extinguishing Zirconium Fire

**Question:** How difficult is it to put out a zirconium fire; does it burn under water?

**Response:** The probability of a zirconium fire is very low, and the probability continues to decrease as the used fuel assemblies continue to decay. As of July 2013, adiabatic cooling calculations (which are very conservative) for San Onofre have concluded that it would take over 17 hours to reach 900°C, one of many conditions that would need to be present for a zirconium fire. Additionally, air cooling calculations have concluded that temperatures would not exceed 565°C (significant margin to zirconium fire conditions).

The preferred method for extinguishing a zirconium fire is by smothering the fire with a Class D dry-powder extinguishing agent or using salt or sand.

Zirconium does not burn underwater because fire needs 3 basic components to support combustion: Fuel, heat, and oxygen. Provided the fuel is submerged underwater, it would be void of oxygen.

In the unlikely event that a Class D fire starts, which means that the zirconium is no longer submerged underwater, water should not be used to extinguish it. The appropriate method for putting out a zirconium fire is smothering with a Class D dry-powder extinguishing agent.

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