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Emergency Preparedness for Small Modular Reactors and Other New Technologies; Proposed Rule

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General Comment

It should go without saying that decisions concerning emergency planning activities and the size of EPZs should be based on objective science (i.e., should be risk-informed, performance-based and consequence-oriented). If an SMR and/or advanced reactor has a much smaller maximum potential source term (radioactivity release), then it's clear that the size of the EPZ should be smaller and that emergency response activities should be different.

The size of EPZs, and emergency responses, should be based on potential public radiation exposures (doses). The public exposure objectives (or limits) should be the same for large reactors and SMRs. Whether the criterion is a limit on maximum individual exposure or a limit on collective public exposure, the EPZ would be much smaller for a reactor that has a much smaller potential source term (e.g., an SMR).

With respect to the specific issues NRC expressed interest in:

All planning activities should be limited to (or informed by) what is necessary to meet the consistent and objective public exposure limits. As a result, a greatly reduced potential source term should be considered in all plans. It could be as simple as just having a much smaller EPZ, and having similar response plans that apply over that much smaller area.

Hazard analyses should be similar to those performed for large plants, but the results would obviously be strongly affected by a much lower potential source term. (Not sure if "hazard analyses" refers to the determination of the maximum source term.)

As discussed earlier, the primary (or only?) factor that should be considered in the EPZ determination is the maximum potential source term (radioactive release). As is (presumably) the case with large reactor EPZ evaluations, other factors like isotopic composition of the release, as well as environmental factors (weather, etc..) may also affect the EPZ size and response plans.