# Remedy Resiliency to Extreme Weather Events

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**Background/Objectives.** The National Contingency Plan (NCP) utilizes long-term effectiveness and permanence as one of the primary balancing criteria in the selection of a hazardous waste remedy. To achieve satisfactory long-term effectiveness and permanence remedial designs often rely on a 1% probability event occurrence. This is a 1 in 100 chance of an event (e.g., flood) being equaled or exceeded in any 1 year, and an average recurrence interval of 100 years. This is often referred to as the “100-year event”.

In March 2016, the National Academy of Sciences (NAS) released a report on the *Attribution of Extreme Weather Events in the Context of Climate Change*. NAS findings denote an increase in the severity and frequency of extreme weather events. In 2011, Texas reached drought status, and within the following six years had experienced three 500-year flood events. In 2018, the U.S. Global Change Research Program led by NOAA published the second volume of the Fourth National Climate Assessment (NCA) report. The 2018 NCA report highlights anticipated future impacts to communities, economy, natural resources and infrastructure due to extreme weather and climate change.

**Approach/Activities.** With all the evidence, the question arises as to whether existing and future hazardous waste remedies are satisfactory when accounting for changes in frequency and severity of extreme weather events. This presentation will look at remedial designs in context of long-term resiliency to extreme weather events, and how some states and USEPA seek to confirm remedy protectiveness.

**Results/Lessons Learned.** The severity and frequency of extreme weather events is increasing, as are the associated costs. NCP criteria for remedy selection may not be adequately considering the potential effects of extreme weather. Implementation of the CERCLA 5-year review process has been inconsistent in its consideration of climate change and extreme weather effects on remedy resiliency. States are slowly beginning to consider climate and weather impacts to remedies.