Strål
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Swedish Radiation Safety Authority

# New emergency planning zones and distances in Sweden

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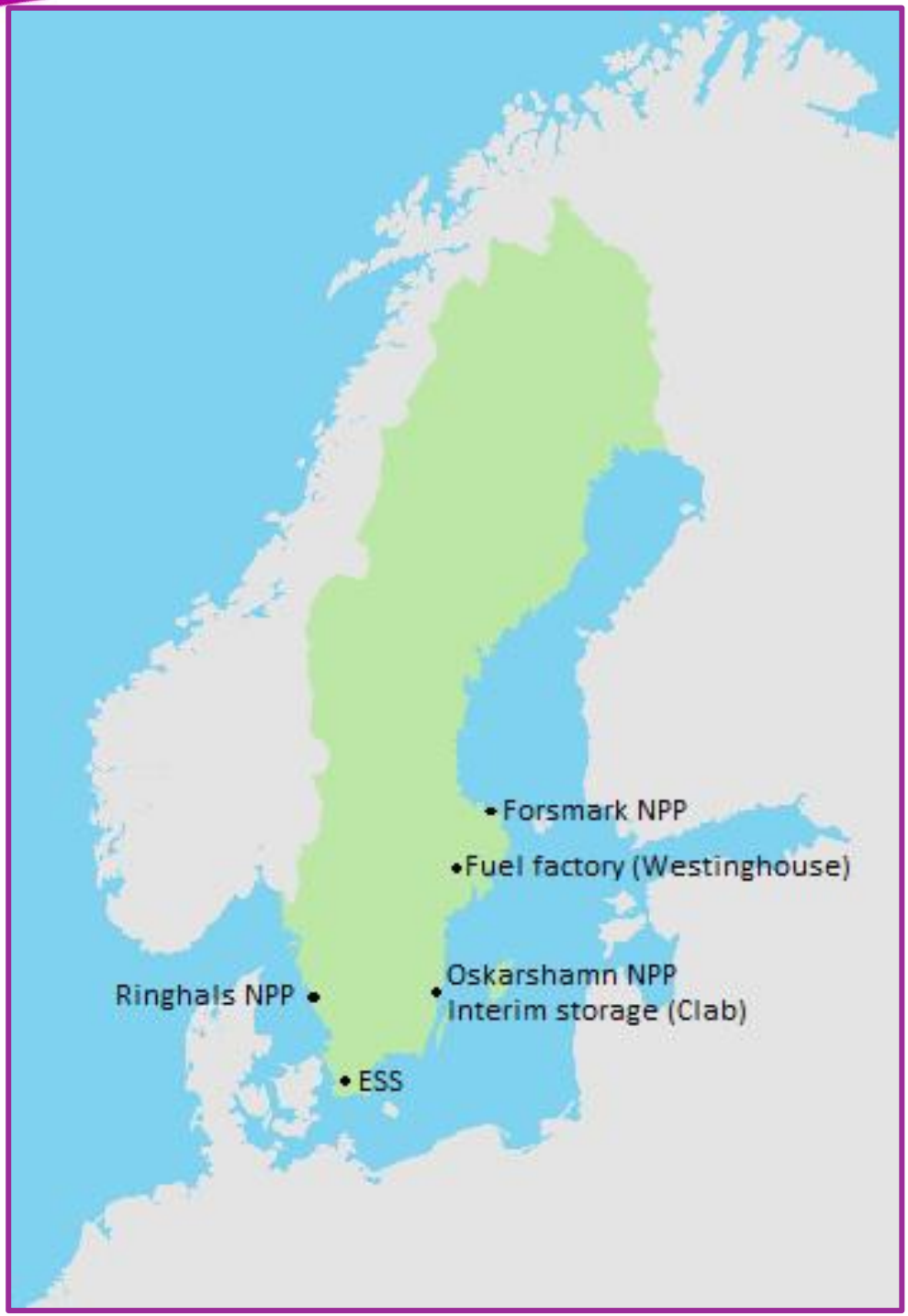
# Facilities in emergency preparedness categories I and II in Sweden



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- Four examples in dealing with uncertainties when SSM developed new emergency planning zones and distances around nuclear power plants and other relevant facilities in Sweden
  - Postulated events
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# Postulated events

- SSM has postulated events to serve as the basis of the proposed emergency planning zones and distances for each relevant facility in Sweden
- The number of postulated events mainly depends on the facility in question and the nature of the radioactive materials occurring at the facility
- The postulated events are physically possible, though in some cases so improbable that they do not need to be taken into account when designing safety systems or mitigation systems

# Source terms

- SSM has calculated source terms for each postulated event on the basis of existing knowledge
- The source terms provide information on
  - The released level of activity per selected nuclide and time interval
  - Height of the release
  - Heat energy in the release
  - Distribution between organic, elemental and particulate iodine in the release

# Reference levels

- SSM has determined two reference levels to serve as the basis for developing the emergency planning zones and distances
  - 100 mSv effective dose for a postulated event without functioning mitigation systems at a NPP
  - 20 mSv effective dose for all other postulated events
- For protracted exposures, the reference level refers to the effective dose over the course of one year as of the initiating event
- However, SSM has dealt with the release phase and the phase after the release separately

# Dispersion and dose calculations

- SSM has performed dispersion and dose calculations using real weather data
- The calculations give maximum distances where dose criteria or intervention levels for different protective actions are exceeded
- Changing weather conditions give distributions of maximum distances
- The ranges of the emergency planning zones and distances proposed by SSM encompass between 70 and 90 per cent of all occurring weather situations

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**The report on new emergency planning zones and distances in Sweden is available in English at:**

www.ssm.se/en/publications/reports/radiation-protection/2017/201727e

Scroll to the bottom of the webpage to find the report

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