

Approaches used for Clearance of Land from Nuclear Facilities among Several Countries: Evaluation for Regulatory Input

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For



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Purpose

SSM initiated a comparison of clearance approaches among several countries

- Use information to develop Swedish regulations and guidance
- Information could be used by industry
 - Understanding the roles of various attributes
 - Planning for the various attributes in advance

Method

- Study site clearance processes in:

- France



- Germany



- Spain



- United Kingdom



- United States



- Identify important attributes of processes
- Summarize for each country each attribute
- Compare process attributes for each country

Method

Attributes

- *Regulatory basis*
- *Scope*
- *Applicability*
- *Flexibility*
- *Transparency*



José Cabrera nuclear power plant

Method

Attributes (continued)

- *Roles and responsibilities of parties involved*
- *Quality program*
- *Details of measurement description*
- *Mathematical approaches*
- *Available assessment tools*



Results—summary table

(example row: Regulatory basis)

Attribute	France	Germany	Spain	UK	US
Regulatory basis	No [residual] activity or concentration of which warrants a radiation-protection control	Order of 10 $\mu\text{Sv/a}$ and tables of concentrations	No general dose or risk basis found, case-by-case	By policy, “no danger” law met by $\leq 10^{-6}$ risk	Multiple, with risks from 10^{-6} to 10^{-4} /a, and doses ranging from 150 to 250 $\mu\text{Sv/a}$ plus ALARA

Results—summary table

(example row: Flexibility)

Attribute	France	Germany	Spain	UK	US
Flexibility	Highly flexible, case-by-case	Pre-scriptive and dose-basis allows flexibility	Highly flexible, case-by-case	Highly flexible, case-by-case	Very highly pre-scriptive in scope; non-binding

Results—summary table

(example row: Roles)

Attribute	France	Germany	Spain	UK	US
Roles and responsibilities of parties involved	General requirements including consult with relevant parties	Law specifies authorities' and operator's requirements; roles of other stakeholders not found	Clear roles of authorities; implementers' roles not found	Possible overlapping authorities, responsibilities, unclear stakeholder roles seem to evolve during processes	Guides user to form quality, planning, implementing, decision teams; consultation with stakeholders, authorities

Results—summary table

(example row: Mathematical approaches)

Attribute	France	Germany	Spain	UK	US
Math. approaches	Not found as a specific application	Explicit and detailed	Not found	Not found	Very explicit detailed robust methods, geospatial not covered

Results



Wide-range of approaches in each attribute

- *Prescriptive and General*
- *Specific and objective-based*
- *Uniform in country or case-by-case*

Concluding Remarks

Regulatory climate

- Varies among countries
- More vs. less prescriptive
- More governmental vs. more public processes
- Tolerance for variable outcomes

Tradeoffs

- Regulatory effort vs. inspection effort
- Costs to authority and to facility

Technically defensible processes are published

- MARSSIM and EURSSEM are examples



Thank you!