



ROSATOM

International Conference on Nuclear Security

State atomic energy corporation "Rosatom"

SMALL MODULAR REACTOR: APPROACHES TO PHYSICAL PROTECTION PROVISION

Vienna

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Types of SMR's

Advances in Small Modular Reactor Technology Developments

A Supplement to:
IAEA Advanced Reactors Information System (ARIS)
2018 Edition



- land based
- marine based
- other/mobile (only project)

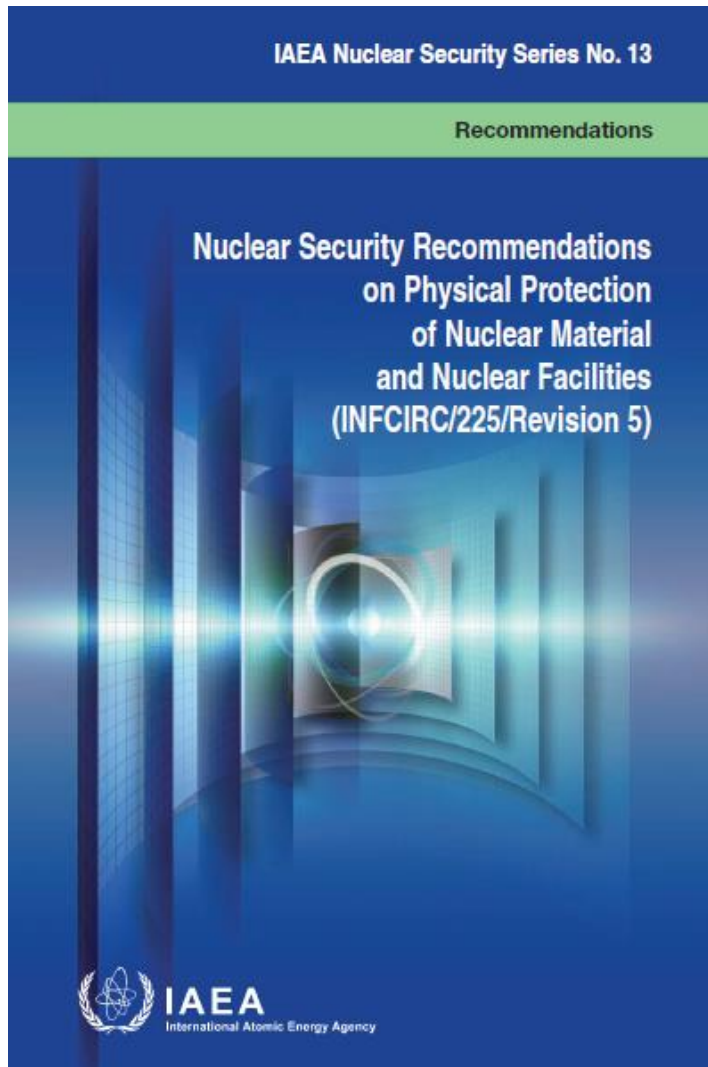
Types of SMR's in PP context

- Land based



- Transportable





4. Requirements for measures against unauthorized removal of nuclear material in use and storage
5. Requirements for measures against sabotage of nuclear facilities and nuclear material in use and storage

Case II: Transportable SMRs



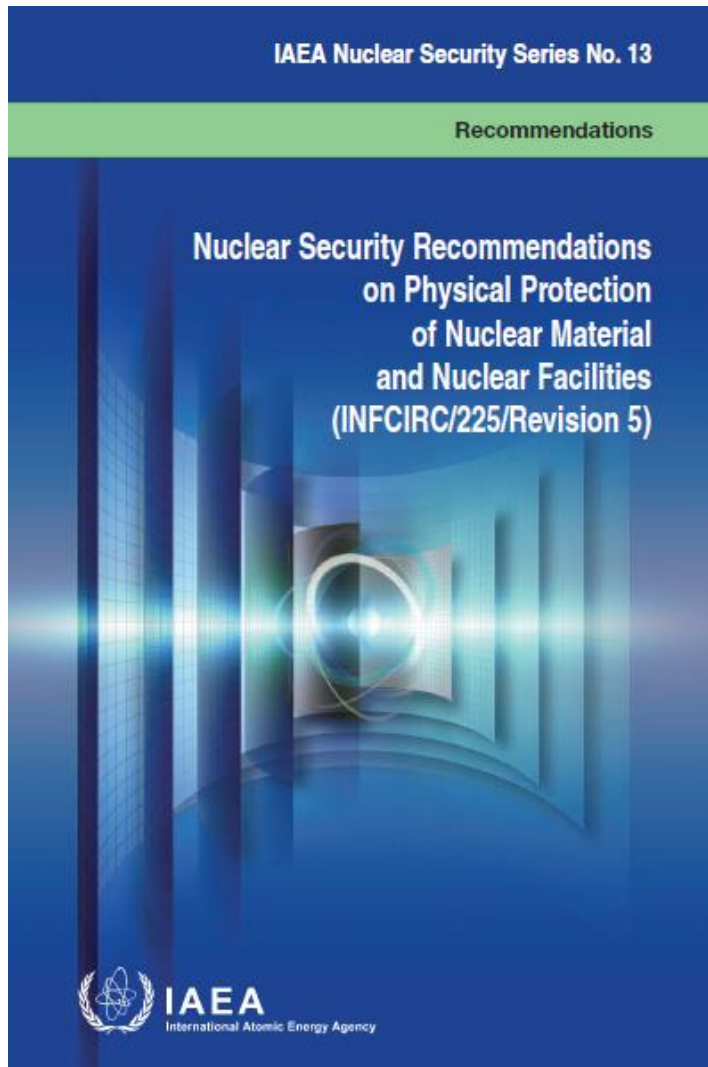
• Scenario 1

1. Platform construction
2. Installation of power unit
3. Transportation (with unfuelled reactor) to the deployment site
4. Fuel loading
5. Operation
6. Decommissioning

• Scenario 2

1. Platform construction
2. Installation of power unit
3. Fuel loading
4. Transportation (with fuelled reactor) to the deployment site
5. Operation
6. Decommissioning

Case II: Transportable SMRs



6. Requirements for measures against unauthorized removal and sabotage of nuclear material during transport

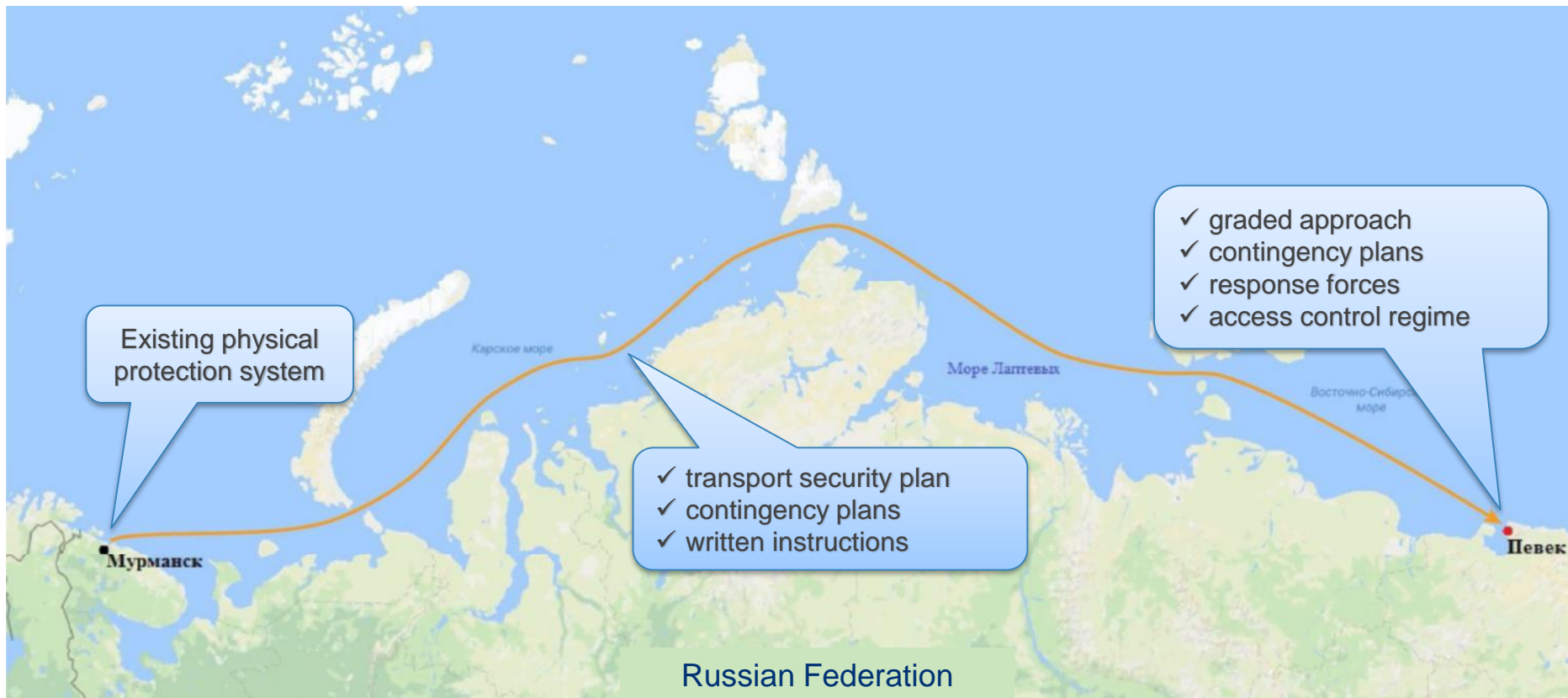
(Security of Nuclear Material in Transport; NSS26-G also could be applied)

Practical Experience: PP of FPU “Akademik Lomonosov”



- PPS of FPU is designed based on the fundamental principals that are applied for all nuclear facilities:
 - based on the threats analysis;
 - potential consequences of malicious acts.
- PPS of FPU is designed to take into account:
 - Location of the facility and nuclear material;
 - Category II nuclear materials (uranium enriched to 10% ^{235}U but less than 20% ^{235}U ; 10 kg or more);
 - FPU whole life cycle:
 - platform construction;
 - installation of the power unit (reactor without fuel);
 - fuel loading;
 - transportation to the site;
 - operation;
 - decommissioning.

Practical Experience: PP of FPU “Akademik Lomonosov”



Thank you for your attention

