G8 Global Partnership against the Spread of Weapons and Materials of Mass Destruction
April 23-24, 2004
Moscow Grand Marriott Hotel

SOGIN
Radiation and
Environmental
Safety and Security
by Massimiliano Nobile
1 - PROJECT SELECTION PROCESS

Minatom and Sogin have been discussing for several months projects to be implemented, taking into account:

- Real and urgent needs of Russian counterpart
- Specific experience and capabilities of Italian side.
2 - IMPORTANT PROJECTS HAVE BEEN SELECTED

- Treatment and conditioning of radioactive waste
- Security upgrades to some of the North-West Russia sites
- Repository for final waste disposal

Aim is to reduce the risk of radioactive material diversion and of environmental problems
3 - STRATEGY FOR REDUCING THE RISK

- Threats for the environment and population, both in normal and accidental conditions, due to the obsolescence of the facilities.

- Radioactive material diversion for malevolent purposes.

- Terrorist actions aimed at creating severe release of radioactivity and/or devastating psychological impact.
4 - APPROACH WHICH HAS BEEN FOLLOWED

- Creation of a regional center for the treatment and conditioning of solid radwaste to concentrate in a single area all the waste presently spread in numerous locations and facilities.

- Treating and conditioning the solid radwaste in order to make them much less sensitive to possible terrorist action and much more in agreement with the environment.

- Supply of a mobile modular facility to condition liquid waste limiting the transports and optimizing the choice of treatment.
Final disposal of the conditioned waste in a dedicated facility constituting a further barrier against ill-intentioned actions and an effective segregation from the environment.

Utilization, for the above mentioned facilities, of security systems adequate to the material to be protected.

A programme of environmental rehabilitation is also envisaged to reclaim the areas where the radwaste were located.

Full application of the defence-in-depth principles.
6 - APPLICABLE CRITERIA

- Projects will be developed in full compliance with the Russian standards, norms and legislation.
- When viable, more stringent western standards will be considered, in particular as regards the personnel radioprotection and the environmental impact of the new facilities.
- Modern updated technologies will be used for waste treatment and conditioning.
7 - EXAMPLES OF MODERN TECHNOLOGIES UNDER STUDY

Remotized/automatic Retrieval Systems

Remotized/automatic Sorting Systems

Pursue of high waste volume reduction factors through:
- Decontamination (Metal Scraps)
- Supercompaction (Compactable Waste)
- Low emission incineration (Burnable Waste)
- Low emission melting (Metal Scrap)
8 - PROJECT IMPLEMENTATION KEY ELEMENTS

- Opening of Sogin Office in Moscow
- Creation of a PMU formed with Italian/Russian experts
- Projects selection/approval and preliminary site visits in parallel with parliamentary ratification process
- Feasibility study for each selected project to allow an immediate solution of all the existing problems (lack of data, sizing of the facilities radiological characterizations, etc.)
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<tbody>
<tr>
<td><strong>Russia</strong></td>
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<tr>
<td>Solid Radwaste (total)</td>
<td>60.000</td>
<td>2,5x10^{16}</td>
<td>7x10^5</td>
<td>11</td>
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<td>Reactor Units</td>
<td>19.000</td>
<td>2x10^{16}</td>
<td>5x10^5</td>
<td>28</td>
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<td><strong>Italy (*)</strong></td>
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<tr>
<td>II and III Category</td>
<td>90.000</td>
<td>9x10^{15}</td>
<td>2,4x10^5</td>
<td>2,7</td>
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<tr>
<td>II</td>
<td>77.000</td>
<td>5x10^{14}</td>
<td>1,4x10^4</td>
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<td>III</td>
<td>13.000</td>
<td>8,5x10^{15}</td>
<td>2,3x10^5</td>
<td>17</td>
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<td><strong>Chernobyl</strong></td>
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<td>Long lived released</td>
<td>____</td>
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<td>1-1,5x10^6</td>
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(*) 4 Nuclear plants, 1 reprocessing plant, hot cells, 3 research reactors, deposits, others (excluding spent fuel)
Waste management

Latina - Sludge tank

Garigliano - LLW temporary storehouse
Garigliano - ILW Conditioning

Garigliano - Facility for extraction from underground storage tank of ILW
Superpacking
Waste management

Garigliano - HLW retrieval and conditioning

Garigliano - 55 ton container for HLW
Shielded cask for radwaste transportation
Dismantling activities

Latina - Blowers dismantling

Latina - Primary circuit piping dismantling
Radiological characterization of biological shielding
Equipment for concrete cutting
Power plant of Latina
Initial state