

National Policy on Radioactive Waste Management

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Abstract. Every country should have some form of policy and strategy for managing its spent fuel and radioactive waste. Such policies and strategies are important; they set out the nationally agreed position and plans for managing spent fuel and radioactive waste and are visible evidence of the concern and intent of the government and the relevant national organisations to ensure that spent fuel and radioactive waste are properly taken care of in the country. There is a large diversity in the types and amounts of radioactive waste in the countries of the world and, as a result of this diversity, the strategies for implementing the policies may be different, although the main elements of policy are likely to be similar from country to country. In some countries, the national policy and strategy is well established and documented, while in others there is no explicit policy and strategy statement and, instead, it has to be inferred from the contents of the laws, regulations and guidelines. The present paper describes the work undertaken by the International Atomic Energy Agency (IAEA) related to identifying the main elements of national policies for spent fuel and radioactive waste management, recognising that policies and strategies vary considerably depending on, among other things, the nature and scale of applications of radioactive material in a country. An indication is provided of what might be contained in national policies recognizing that national policy and strategy has to be decided at the national level taking into account national priorities and circumstances. The paper is concerned with the contents of policies and strategies and does not address the development of national laws, regulations and guidelines — although these are clearly related to the contents of the national policy and strategy.

KEYWORDS: *Radioactive, waste, national, policy, strategy.*

1. Introduction

National policies and strategies for managing spent fuel and radioactive waste set out the country's agreed position and plans for managing spent fuel and radioactive waste and are visible evidence of the concern and intent of the government and the relevant national organisations to ensure that spent fuel and radioactive waste are properly taken care of.

The words 'policy' and 'strategy' are often used interchangeably. This can be seen both in national reports to the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management (the Joint Convention) [1, 2] and in international documents on the subject. In this paper, a distinction is made; policy is taken to mean the particular goals or requirements for the safe management of spent fuel and radioactive waste management, while strategy is taken to mean the ways and methods used to implement the policy.

It is implied in the Joint Convention [2] that States should have policies related to the management of spent nuclear fuel and radioactive waste. Article 32 requires Contracting Parties to address in their national reports to the review meetings of the Convention:

- (i) spent fuel management policy;
- (ii) spent fuel management practices;
- (iii) radioactive waste management policy;
- (iv) radioactive waste management practices;
- (v) criteria used to define and categorize radioactive waste.

There is a large diversity in the types and amounts of radioactive waste in the countries of the world and, as a result, the strategies for implementing the policies are sometimes different, although the main elements of policy are likely to be similar from country to country. In some countries, national policies

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and strategies are well established and documented, while in others they exist but there are no explicit statements of them and, instead, they have to be inferred from the contents of laws, regulations and guidelines. This is usually because the policy and strategy have been developed gradually over time and incorporated into legislation. The absence of explicit policies and strategies can, however, result in a lack of transparency in relation to the actual policy and strategy on particular aspects and therefore, where possible, it is desirable to have explicit national policy and strategy statements. Another reason for wishing to have explicit policies and strategies is related to the comparative speed with which political changes can occur in a country, thereby affecting policy and strategy. The content of laws and regulations cannot usually be changed quickly, while the revision of national policy and strategy statements is usually less difficult.

National policies and strategies are mentioned in several documents of the International Atomic Energy Agency (IAEA) [3, 4] but the contents of a national policies and strategies are not well elaborated. This is why the IAEA is developing a document which the objective is to set out the main elements of national policy and strategy for safe spent fuel and radioactive waste management recognising that policies and strategies vary considerably depending on, among other things, the nature and scale of applications of radioactive material in a country. The strategies adopted may also depend on the national availability of waste management competence, facilities and technology. The IAEA's document is intended as an aid, resource and reference for those engaged in the development or updating of national policies and strategies for radioactive waste management. It provides an indication of what might be contained in national policies and strategies but it does not prescribe what the contents should be, since national policy and strategy has to be decided at the national level taking into account national priorities and circumstances. The IAEA document is expected to be of use to all countries that have spent fuel and/or radioactive waste to manage, but in particular to developing countries which have yet to establish their national policies and strategies.

The present paper has been prepared on the basis of the above-mentioned document. It deals mainly with policy aspects; the development or upgrading of national policies for spent fuel and radioactive waste management.

2. Concepts

For the purpose of this paper the following concepts are used:

A policy is a set of established goals or requirements for the safe management of spent fuel and radioactive waste; however, national roles and responsibilities are also usually defined in the national policy. As such, the policy is mainly established by the national government.

A strategy is the means for achieving the goals and requirements set out in the national policy for the safe management of spent fuel and radioactive waste. It is normally established by the relevant waste owner or operator, either governmental agency or a private entity. The national policy may be elaborated in several different strategies. The individual strategies may address different types of waste (e.g. reactor waste, decommissioning waste, institutional waste, etc.) or waste belonging to different owners.

The line separating policy from strategy is not always sharp and sometimes it is not clear whether an issue should be taken up in policy or strategy. For example, some policy makers might place into policy only the requirement for the safe management of radioactive waste, and then rely upon strategy makers to decide on the method for achieving this. Other policy makers might include a requirement for a particular management method directly into national policy. Some countries may not distinguish between the two concepts and, instead, have a national plan which is, in fact, a combined policy and strategy.

Policy is often codified in the national legislative system: this provides a formal requirement for its implementation and for the development of appropriate strategies.

3. The Need for Spent Fuel and Radioactive Waste Management Policy and Strategy

A policy for spent fuel and radioactive waste management with defined goals and requirements is needed:

- as a basis for the preparation of related legislation;
- to define roles and responsibilities for ensuring the safe management of spent fuel and radioactive waste;
- as a starting point for the development of national spent fuel and radioactive waste management programmes (strategies);
- as a starting point for further developments and modifications to the existing national practices
- to provide for the safety and sustainability of radioactive waste management over generations and for the adequate allocation of financial and human resources over time; and
- to enhance public confidence in relation to the subject of spent fuel and radioactive waste management.

The set of declared national goals and requirements for the safe management of spent fuel and radioactive waste has to be translated into a more practical and operational form, or strategy, to provide for their implementation. Strategies are needed to:

- specify how the national radioactive waste management and spent fuel policy will be implemented by the responsible organizations using the available technical measures and financial resources;
- define how and when the identified goals and requirements will be achieved;
- identify the competencies needed for achieving the goals and how they will be provided;
- elaborate the ways in which the various types of radioactive waste in the country, including, where appropriate, spent fuel, will be managed during all phases of the radioactive waste lifecycle (from cradle to grave); and
- to enhance public confidence in relation to the subject of spent fuel and radioactive waste management.

A well-defined policy and the associated strategies are useful in promoting consistency of emphasis and direction within all of the sectors involved in spent fuel and radioactive waste management. The absence of policy and strategy can lead to confusion or lack of co-ordination and direction.

On occasions, a policy and/or strategy may be needed to prevent inaction on a particular waste management issue or to resolve an impasse.

4. Principles for Establishing Policy and Strategy

Over the years, a number of principles have emerged which influence the thinking of policy makers in the area of spent fuel and radioactive waste management. Most of these principles are shared globally and some have emerged from the need for countries to interact and coexist with each other. These principles influence national policy, laws, regulations and guidance as well as radioactive waste management strategy. The technical content of the Joint Convention [2] is based on a specific set of principles formulated in an IAEA Safety Fundamentals document of 1996 ‘The Principles of Radioactive Waste Management’ [5]. The principles are:

- protection of human health;
- protection of the environment;
- protection beyond national borders;
- protection of future generations;
- burdens on future generations;
- national legal framework;
- control of radioactive waste generation;
- radioactive waste generation and management interdependencies;
- safety of facilities.

It is noted that the Safety Fundamentals document of 1996 was superseded in 2006 by a more general high level document entitled Fundamental Safety Principles [6] laying down principles for the entire nuclear safety area. The principles identified in the 1996 Safety Fundamentals are covered in [6] but in a more general way - less specific to radioactive waste management.

Other relevant considerations include:

Public participation in decision making: Decisions which may have a potential health, social, or environmental impact should be made in consultation with those who may be affected (the regional Aarhus Convention [7]).

Sustainable development: In view of the long periods of time into the future that radioactive waste and spent fuel may have to be safely managed, sustainability considerations are relevant. There should, therefore, be a focus on meeting the needs of the present without compromising the ability of future generations to meet their own needs. [8].

The above listed principles and considerations may not be explicitly present in the national policy but they will usually have influenced it as well as the relevant national laws, regulations and guidance that flow from it. They provide a commonly understood basis for guiding all activities related to the safe management of radioactive waste.

5. Prerequisites for Policy Development

As a first step towards developing or updating a policy for spent fuel and radioactive waste it is necessary for the persons engaged in its preparation to be aware of the existing situation in a country. They should, amongst other things, have an understanding of the status of the topics listed below.

Present national legal framework: The existing national legal structure and regulatory framework and their suitability for implementing policies for the safe management of spent fuel and radioactive waste.

Present institutional structure: The existing institutional structure, (regulatory body, radioactive waste management organization and facilities) within the country for the management of radioactive waste and spent fuel.

Applicable international conventions: The applicable international instruments and the obligations placed on the country as a result of these instruments. The Joint Convention [2] is clearly relevant here but other conventions, such as the London Convention, 1972 [9] (as related to radioactive waste dumping at sea), and the OSPAR Convention [10] (as related to the discharge of radioactive materials to the NE Atlantic Ocean) may be relevant for some countries.

Present national policies and strategies: The content of existing relevant national policies, if any, in relation to spent fuel and radioactive waste management and the existence of applicable strategies which would be available in response to any policy development.

Spent fuel and radioactive waste inventory: Indicative national inventories (amounts and types) of existing and anticipated spent fuel and radioactive waste should be available.

Availability of resources: The scale of the resources (human, financial, technical) available in the country to facilitate implementation of the policy.

Situation in other countries: The waste management solutions being used in the region and the facilities/technologies available in other countries that potentially could be shared.

Stakeholder involvement: The main parties concerned and involved with spent fuel and radioactive waste management in the country.

6. Typical Elements of a National Policy

A national policy should reflect national priorities, circumstances, structures, human and financial resources. It should also be compatible with relevant international instruments and be consistent and coherent with other, non-nuclear policies, in particular, those dealing with other hazardous materials. The policy adopted may depend, in some respects, on the national political and social system and this may influence the extent to which the national government is involved in radioactive waste management.

Some of the elements of national policy may be based on the general principles summarised in before. Others may be specific to the circumstances of the country, for example, a policy on the return of disused sealed sources to the supplier, or on the export and import of radioactive waste. The national policy may be influenced by a number of factors, such as, the amounts, the types and the characteristics of the radioactive waste and the geographical distribution of the radioactive waste and of the population. Both existing and planned or anticipated developments in the field need to be considered.

The national policy for radioactive waste management should reflect the magnitude and scale of the hazard posed by the waste (a graded approach). While countries having radioactive waste from a large nuclear industry which might include uranium mining and milling, nuclear fuel production and reprocessing and nuclear power generation, as well as the institutional use of radioisotopes, may require an elaborate and comprehensive policy for the management of their radioactive waste, for countries without a nuclear power programme and only a few sources of radioactive waste a simpler policy with only a few elements may be adequate.

The following are some of the main elements to be considered in establishing a national policy for spent fuel and radioactive waste management. Not all of these may be relevant to all countries and therefore some selection may be necessary in developing a policy for a particular country. Equally, other items, not included here, may be important for the policy of a particular country.

6.1 Allocation of responsibilities

In most countries it is accepted that the person or organisation that creates the waste is responsible for it and for its safe management. Article 21.1. of the Joint Convention [2] reads: *“Each Contracting Party shall ensure that prime responsibility for the safety of spent fuel or radioactive waste management rests with the holder of the relevant licence and shall take the appropriate steps to ensure that each such licence holder meets its responsibility.”*

National governments also have responsibilities in this context. Paragraph (vi) of the Preamble to the Joint Convention [2] reads: *“Reaffirming that the ultimate responsibility for ensuring the safety of spent fuel and radioactive waste management rest with the State;”* In addition, governments should provide for control over sources of radiation for which no other organization has responsibility, such as, radioactive residues from some past facilities and activities and orphan sources. Article 21, 2 of the Joint Convention [2] reads: *“If there is no such licence holder or other responsible party, the responsibility rests with the Contracting Party which has jurisdiction over the spent fuel or over the radioactive waste.”*

Governments should establish a legislative and regulatory framework, including the designation of an independent regulatory body to enforce, among other things, the regulations for the safe management of spent fuel and radioactive waste (Articles 19 and 20 of the Joint Convention [2]). Governments should also ensure that arrangements are implemented for the safe long term management of radioactive waste.

It is important for there to be clarity concerning national responsibilities for managing spent fuel and radioactive waste. Thus, the national policy should identify:

- the organization(s) of the government responsible for establishing the legislative and regulatory framework;
- the relevant regulatory body;
- the organization responsible for ensuring that waste is safely managed (normally the licensee); and
- the organization responsible for the long-term management of spent fuel and radioactive waste and for radioactive waste for which no other organization has responsibility.

6.2 Provision of resources

The waste owner is generally considered to be financially responsible for ensuring that radioactive waste is properly and safely managed, i.e., in accordance with the well known ‘Polluter Pays Principle’ [12]. However, the arrangements for the long term management of radioactive waste are normally coordinated or overseen at the national level. In this context, Article 22 of the Joint Convention [2] requires that:

“Each Contracting Party shall take the appropriate steps to ensure that:

- (i) qualified staff are available as needed for safety-related activities during the operating lifetime of a spent fuel and a radioactive waste management facility;*
- (ii) adequate financial resources are available to support the safety of facilities for spent fuel and radioactive waste management during their operating lifetime and for decommissioning;*
- (iii) financial provision is made which will enable the appropriate institutional controls and monitoring arrangements to be continued for the period deemed necessary following the closure of a disposal facility.”*

Thus, the national policy should set out the arrangements for:

- establishing the mechanisms for providing the resources or funds for the safe long term management of spent fuel and radioactive waste;
- ensuring that there are adequate human resources available to provide for the safe management of spent fuel and radioactive waste, including, as necessary, resources for training and research and development; and
- providing institutional controls and monitoring arrangements to ensure the safety of spent fuel and radioactive waste storage facilities and waste repositories during operation and after closure.

This is discussed in detail in Reference [13].

6.3 Safety and security objectives

A common overarching element in national policies on spent fuel and radioactive waste management is the safety objective. This can be stated as being: to protect individuals, society and the environment from the harmful effects of ionising radiation due to spent fuel and radioactive waste both now and in the future (Article 1 (ii) of the Joint Convention [1] and [14]). In addition, the policy should require, where appropriate, that there is physical protection and security of facilities in order to prevent the unauthorized access of individuals and the unauthorized removal of radioactive materials [14].

6.4 Waste minimization

The national policy may address the need to minimize the generation of radioactive waste at the design (minimization at source), operation and decommissioning stages of facilities – see Article 4 (ii) of the Joint Convention [2]. In this regard, it may identify some of the main means for achieving waste minimization in the operational and decommissioning stages of facilities including:

- the recycling and reuse of materials which are free of contamination or only slightly contaminated; and
- the use of the clearance concept for determining the materials that can be released safely from regulatory control [14, 15].

6.5 Export/import of radioactive waste

In some countries there is a concern that the national facilities developed for the storage and/or disposal of radioactive waste of national origin might be used for the waste of other countries and, for this reason, their national policies contain an explicit statement excluding this possibility. On the other hand, some countries are seeking international solutions for the long-term management of radioactive waste and for this approach to succeed, the possibility to export and import radioactive waste must exist among the countries choosing this option (Paragraph (xi) of the Preamble to the Joint Convention [2]).

Requirements for ensuring the safety of such operations are specified in Articles 27 and 28 of the Joint Convention [2]. The national policy may thus specify:

- conditions on the import and/or export of radioactive waste;
- an intention to store/dispose of radioactive waste on national territory; and/or
- an intention to seek international/regional solutions.

6.6 Management of spent fuel

The national policy on the management of spent fuel should be made clear (Preamble of the Joint Convention [2]). The policy may be, for example:

- to consider the spent fuel as a resource and to seek to utilise the resource through reprocessing (nationally or internationally);
- to regard spent fuel as a waste and to dispose of it directly; or
- to return the spent fuel to the supplier.

In many countries, spent fuel is stored on an interim basis while waiting for either of the first two options to be decided upon. In the case of the spent fuel from research reactors, the last option is often adopted.

Spent fuel is a subject of nuclear safeguard controls and this aspect needs to be appropriately addressed when developing the national policy [16].

6.7 Management of radioactive waste

Although disused sealed radioactive sources are only one component of the national radioactive waste inventory, they are particularly important for some countries with little other hazardous radioactive waste to manage. For this reason, the policy for their management may be specified in the national policy. Requirements for ensuring the safety of disused sealed radioactive sources are specified in Article 28 of the Joint Convention [2] and other documents as well [11]. The management options for disused sealed sources may include:

- return of the disused sealed radioactive sources to the supplier;
- management of the sources on national territory; or
- international radioactive waste management solutions.

The national policy should identify the main sources of radioactive waste in the country, including that from the decommissioning of facilities, if appropriate, and:

- identify the intended national arrangements for the management of the main types of radioactive waste;
- identify the end points of the management process; and
- recognise that some radioactive waste may be potentially hazardous for long times into the future and therefore require long-term surveillance.

6.8 Naturally occurring radioactive material (NORM)

NORM arises from various industries as a by-product; (the residues from uranium mining and milling are included here in this category). NORM is managed in different ways in different countries. In some countries it is regarded as being subject to radioactive materials legislation while in others it falls within non-radioactive materials legislation. For this reason it is important that national policy should indicate the regulatory regime under which NORM is managed (Article 3, 2. of the Joint Convention [2]).

6.9 Public information and participation

The national policy may indicate the State's intention to inform the public about proposed plans for radioactive waste management and to consult concerned parties and members of the public to aid in making related decisions (paragraph (iv) of the Preamble of the Joint Convention [2], and [17]). Nowadays, governments tend to emphasize their commitments to policies of openness and transparency in relation to their intentions and plans on radioactive waste management.

7. Establishment and Implementation of a National Policy

7.1 Creating a national policy statement

A national policy statement must represent the views of all of the organizations concerned in the management of spent fuel and radioactive waste. Therefore, an appropriately representative committee should be established to develop the policy or to update an existing policy. It should contain representatives of the regulatory body, the radioactive waste management organization, the radioactive waste generators and other organizations with responsibilities in the area of radioactive waste management. The process for developing policy should take account of all of the topics listed in Section 6 and of any others which are specific to the country. If a policy is being updated, account should be taken of all relevant national and international changes and events that have occurred since the previous policy was developed. The draft policy document should be reviewed and approved by all relevant national organizations. After this, approval of the policy statement by government should be sought through appropriate channels; it is recognized that these will differ from country to country. The aim is to produce a policy statement which reflects the official position of the government on spent fuel and radioactive waste management.

The incorporation of national policy into the relevant legislation adds formalization and is a desirable outcome of the policy updating process. However, this may not be necessary if it is clearly understood that the policy statement represents the government position on the subject and provided that it does not cause any conflicts with existing legislation.

7.2 Implementing the policy

Implementation of the policy requires that there is an adequate and appropriate waste management institutional framework in the country. If this does not exist, the initial implementation step should be to establish such a framework. This framework should include a national organization devoted to coordinating or overseeing radioactive waste management, and an independent regulatory body established to enforce the implementation of the regulations on spent fuel and radioactive waste management. Other governmental bodies may have roles in the process, for example, government organizations concerned with environmental protection and the transport of radioactive materials as well as local governmental organizations. Responsibilities for implementing the various aspects of national policy should be allocated within the relevant organisations.

The competence of the staff of the radioactive waste management organisation and the regulatory body should be adequate for the work to be done and training should be provided to ensure that the organizations achieve and maintain competence.

There should be a funding mechanism to provide adequate financial resources for the management of spent fuel and radioactive waste, both in the short and longer term. This will often involve

contributions being made to a central fund by the organizations in the country that generate radioactive waste. In other cases, central government may take partial or full financial responsibility for radioactive waste management. The funds should be used to provide the necessary facilities and equipment for safe radioactive waste and spent fuel management and the staff to operate them.

9. Conclusion

The main elements of national policies for spent fuel and radioactive waste management have been identified and the rationale for their inclusion in policies has been elaborated. The reasons for having explicit national policies and strategies have been discussed, including those deriving from the obligations placed upon countries by international legal instruments. The advantages of having well defined national policies have been set out. Finally, suggested mechanisms for establishing and implementing policy in a country have been discussed.

The IAEA will publish a document [18] on this subject in the near future which contains a fuller development of the topics discussed here. This document also discusses the establishment of strategies for the management of radioactive waste in a country. By this means the IAEA is seeking to encourage countries to develop and improve their own national policies and strategies for the management of spent fuel and radioactive waste.

REFERENCES

- [1] <http://www-ns.iaea.org/conventions/waste-jointconvention.htm>
- [2] INTERNATIONAL ATOMIC ENERGY AGENCY, Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management, IAEA INF/CIRC 546, (1997).
- [3] INTERNATIONAL ATOMIC ENERGY AGENCY, Legal and Governmental Infrastructure for Nuclear, Radiation, Radioactive Waste and Transport Safety, Safety Standards Series, GS-R-1, IAEA Vienna, (2000).
- [4] INTERNATIONAL ATOMIC ENERGY AGENCY, Management of Waste from the Use of Radioactive Material in Medicine, Industry, Agriculture, Research and Education, Safety Standards Series, WS-G-2.7, IAEA, Vienna, (2005).
- [5] INTERNATIONAL ATOMIC ENERGY AGENCY, The Principles of Radioactive Waste Management, Safety Series No. 111F, IAEA, Vienna, (1996).
- [6] INTERNATIONAL ATOMIC ENERGY AGENCY, Fundamental Safety Principles, Safety Standards Series, Safety Fundamentals No. SF-1, IAEA, Vienna, (2006).
- [7] UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE, Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters, UNECE, Geneva, (1998); available at <http://europe.eu.int/comm/environment/aarhus/>
- [8] UNITED NATIONS CONFERENCE ON ENVIRONMENT AND DEVELOPMENT, Rio Declaration on Environment and Development, Rio de Janeiro, 3 to 14 June 1992.
- [9] INTERNATIONAL MARITIME ORGANISATION, Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972, IMO London, 1972.
- [10] OSPAR COMMISSION, The Convention for the Protection of the Marine Environment of the North-East Atlantic (the "OSPAR Convention"), 1992.
- [11] INTERNATIONAL ATOMIC ENERGY AGENCY, Code of Conduct on the Safety and Security of Radioactive Sources, and supplementary Guidance on the Import and Export of Radioactive Sources, IAEA, Vienna, (2003).
- [12] SANDS P., Principles of Environmental Law, Cambridge, (1994).
- [13] INTERNATIONAL ATOMIC ENERGY AGENCY, Cost Considerations and Financing Mechanisms for the Disposal of Low and Intermediate Level Radioactive Waste, IAEA TECDOC 1552, IAEA, Vienna (2007).
- [14] FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, INTERNATIONAL ATOMIC ENERGY AGENCY, INTERNATIONAL LABOUR ORGANIZATION, OECD NUCLEAR ENERGY AGENCY, PAN AMERICAN HEALTH ORGANIZATION, WORLD HEALTH ORGANIZATION, International Basic Safety

- Standards for Protection against Ionizing Radiation and for the Safety of Radiation Sources, Safety Series No. 115, IAEA, Vienna, (1996).
- [15] INTERNATIONAL ATOMIC ENERGY AGENCY, Application of the Concepts of Exclusion, Exemption and Clearance, Safety Standards Series, No.RS-G-1.7, IAEA, Vienna, (2004).
 - [16] INTERNATIONAL ATOMIC ENERGY AGENCY, The Structure and Content of Agreements Between the Agency and States Required in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons, INFCIRC/153 (Corrected) June 1972, IAEA, Vienna (1972).
 - [17] INTERNATIONAL ATOMIC ENERGY AGENCY, Stakeholder Involvement in Nuclear Issues, International Nuclear Safety Group, INSAG-20, IAEA, Vienna (2006).
 - [18] INTERNATIONAL ATOMIC ENERGY AGENCY, “Policies and Strategies for Spent Fuel and Radioactive Waste Management”, DRAFT Technical Reports Series IAEA, Vienna.