

UPGRADING OF RADON'S-TYPE NEAR SURFACE REPOSITORY IN LATVIA

A. ABRAMENKOVS

*Hazardous wastes management state agency, Ministry of Environment,
31 Miera Street, Salaspils, LV-2169, Latvia*

ABSTRACT

In 1959, the Soviet government decided to construct the near surface radioactive wastes repository "Radons" near the Baldone city. It was put in operation in 1962. The changes in the development of the repository were induced by the necessity to upgrade it for disposal of radioactive wastes from the decommissioning of the Salaspils Research Reactor (SRR). The safety assessment of repository was performed during 2000-2001 under the PHARE project for necessary upgrades of repository. The outline design for new vaults and interim storage for long lived radioactive wastes was elaborated during 2003-2004 years. The Environmental Impact Assessment (EIA) for upgrade of Baldone repository was performed during 2004-2005 years. It was found, that additional efforts must be devoted for solution of social aspects of successful operation and upgrade of repository. It was shown by EIA, that the local population has a negative opinion against the upgrade of repository in Latvia. The main recommendations for upgrades were connected with increasing the safety of repository, increasing of PR activities for education of society and developing of compensation mechanism for local municipality.

1. Introduction

The national radioactive wastes repository "Radons" is located in Baldone site near the capital of Latvia – Riga. It was put into operation on 1962. The repository was originally built according to former USSR design as a near surface "Radons" –type repository with common vaults.

Since 1995, after introduction of new technology with the possibility of retrieval of containers with radioactive wastes, the new 7-th vault was put in operation.

In May 16 of 1995, the Cabinet of Ministers had made the Order No. 263 to shut down the Salaspils Research Reactor. SRR was shutdown in June 19 1998. According to the Order No. 57 of Cabinet of Ministers in October 26 1999, this accepts the option to direct dismantling of SRR to "green field", the upgrade of national radioactive wastes repository was initiated.

The national strategy for radioactive wastes management development comprises a series of 13 actions (together with budgetary implications) that should guarantee safe management of radioactive waste in Latvia up to 2010, hence up to the complete dismantling of the Salaspils research reactor. This strategy largely relies on the recommendations of the EC-funded study that was completed in 2001 [1], as well as several studies for decommissioning of Salaspils research reactor [2-4] The decision of the Government of Latvia in 26 June 2003 defined to start the upgrade the Baldone repository.

The outline design for additional vaults and interim storage for long lived radioactive wastes was elaborated during 2003 – 2004 years under EC-funded project. To fulfil all demands of national regulations, the EIA studies were performed during 2004-2005 years.

2. The short description of repository

Radioactive wastes repository "Radons" occupies 7 ha territory. It consists on 2 parts –supervision part and control area with the vaults (Fig. 1). The environmental laboratory, decontamination building, garage building is located at territory of repository. The emergency group of the Hazardous wastes management state agency is based on the infrastructure of the repository. There are 7 vaults at the control area of Baldone repository. Three of them are concrete, underground 200 m³ vaults (1, 3, 6), 2 - concrete underground 40 m³ vaults (4, 5) and one vault is a 200 m³ stainless steel underground

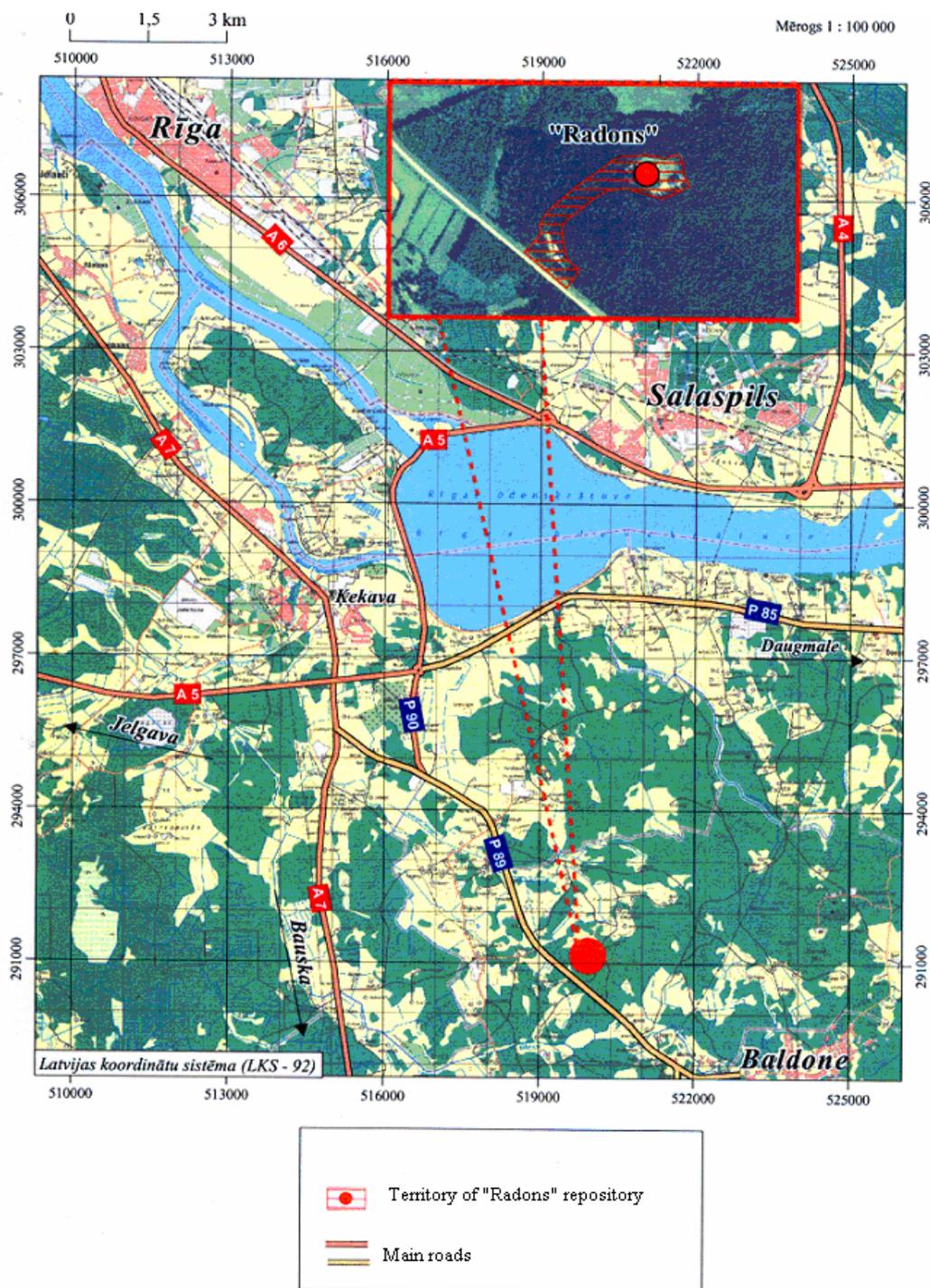


Fig.1. Radioactive wastes repository "Radons".

tank used for liquid waste (2), but now the waste from it is removed and the tank was cleaned up. As vaults for solid waste were filled up, a new 1200 m³ vault was constructed (7). It is in maintenance from the end of 1995. The main functions of repository are following:

1. safe maintenance of disposed and temporary stored radioactive wastes with total amount 400 TBq;
2. transportation of radioactive wastes at territory of Latvia;
3. decontamination of contaminated materials, soil and different objects including vehicles;
4. management of accidents with radioactive and hazardous materials;
5. implementation of area monitoring programme.

3. Development of repository during 2000- 2005 years

It was shown [1-6], that the decommissioning of Salaspils research reactor causes significant changes in radioactive wastes management system of Latvia. The following upgrades were performed at repository:

1. Security systems (2002-2004);
2. Radiation protection upgrades (2003-2004);
3. Upgrade of the 7-th vault 2003-2004);
4. Transport systems upgrades (2003-2005);
5. Radioactive wastes packages upgrade, including tests (2000-2004);
6. Emergency group upgrade (2004-2005).

The following studies were performed for improving of radioactive wastes management system in Latvia and Hazardous wastes management agency:

1. Safety assessment for planned upgrades of capacity of repository – PHARE project (2000-2001);
2. Preparation of outline design for additional vaults and interim storage of long lived radioactive wastes- PHARE project (2003-2005);
3. Environmental Impact Assessment studies for upgrade of repository (2004-2005) [5].

4. Interactions with the local municipality.

Operational activities of repository are connected with the interactions with the local municipality of Baldone. The attention of population of Baldone municipality to repository is shown on Fig. 2.

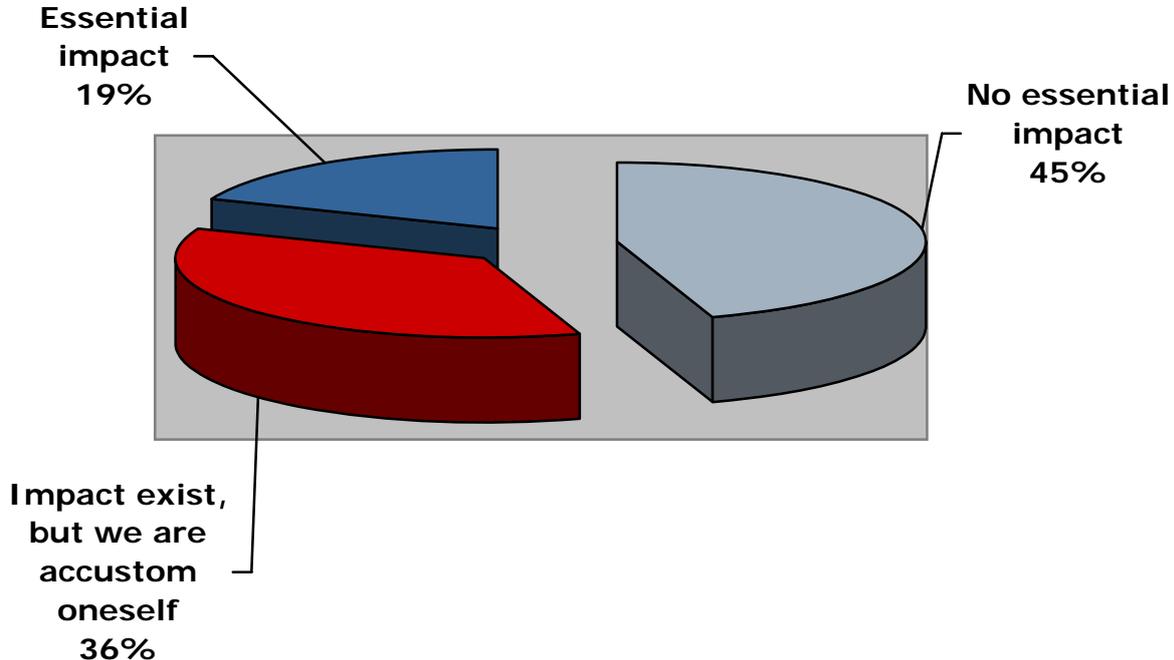


Fig.2. Opinion of population of Baldone municipality on impact of repository

The main problems according to point of view of population are summarized in the Table 1. The point of view of population was clarified during studies of EIA and presentation of outline design for upgrading of repository's "Radons" site, which is connected with construction of two additional vaults and one temporary storage for long lived radioactive wastes, which cannot be acceptable (do

not fulfill waste acceptance criteria) for disposal in repository. The table indicates the main factors referred by population which can be related with the repository.

Table 1

Main problems created by repository for population of Baldone municipality (opinion of population).

Factor	Value,%
Impact on health	51
Unclear impact of radiation	31
Psychological discomfort	18
Impact on nature and animals	12
Lack of information on repository	10
Impact on economy	8

EIA studies show that about 62 % of population is against to upgrade of repository. Main reasons are connected with “fear factor”, leak of information and previous problems in communication with the Government during reconstruction of site in early 90-ties. Main recommendations of EIA studies are:

1. Increase safety of repository;
2. Develop PR activities for education of society;
3. Develop the compensation mechanism for local municipality.

To develop the positive co-operation between the local municipality and repository, the following measures are performed:

1. Preparation and submission of 3 months activities report for local municipality;
2. Preparation and submission of annual environment monitoring report;
3. Participation in the renovation activities of the middle school of Baldone;
4. Support of different projects of Baldone municipality;
5. Developing of wastes minimization program for decommissioning of Salaspils research reactor.

The last issue is connected not only with the protection of population of Baldone municipality, but also includes the measures for protection of environment by using of modern technologies for conditioning of radioactive wastes at Salaspils site, which is more suitable for it purposes.

5. Conclusions

1. The national near surface disposal site for radioactive wastes exist in Latvia.
2. The decommissioning of Salaspils research reactor causes upgrades of Baldone repository.
3. The additional efforts must be performed for development of co-operation with local municipality to receive the support for development of radioactive wastes management system in Latvia.
4. The education of society is necessary for further development of radioactive wastes management system in Latvia.

References

- [1] "Long-term safety analysis of the Baldone radioactive waste repository & updating of waste acceptance criteria". Study performed by Cassiopee. EUR 20054 en (December 2001). The report can be downloaded from the following website:
<http://europa.eu.int/comm/energy/nuclear/synopses.htm#20054>
- [2] NOELL-KRC. Conceptual study for the Decommissioning, dismantling and radioactive waste treatment of the Salaspils Nuclear Research Reactor. Total dismantling to green field condition. Final report. Germany, Wuerzburg , 1999 .

[3]NOELL-KRC. Conceptual study for the Decommissioning, Disposal and Residual Waste Treatment for the Research Reactor Salaspils. Decommissioning strategies. Final report. Germany, Wuerzburg , 1998 .

[4] M.T.Cross, A.Clayton, A. Bishop, C.Kinscott, J.M.Garcia Quiros and R.Garcia-Bermejo Fernandez. A report produced for European Commission TSAF/WL/262/PH2 (Lat). December 1999.

[5] Final report of Environmental Impact Assessment studies for construction of two additional radioactive wastes vaults and interim storage for long lives radioactive wastes in radioactive wastes repository “Radons”. Riga, September 2005.