# Site (Structure) : Bratrstvi

Country: CZECH REPUBLIC Reporting Year: 2013

Full Name: URAO Bratrstvi

Description:

Official Website:

License Holder(s): SURAO (Radioactive Waste Repository Authority)

Comment **# 388: Information**

The Bratrstvi facility was built in an abandoned uranium mine near Jachymov (Joachimsthal). It is used for waste containing natural radionuclides (Ra-226, Pb-210, Uranium and Thorium isotopes).

Waste management facilities that are located at this site:

| **Facility:** | **URAO B** |
|---|---|
| Description: | Rock cavity type repository (disused uranium mine) |
| Detailed Facility Description: | The facility has 5 disposal cavities adapted from former mining shafts; disposal cavities are connected with an access tunnel.<br><br>Capacity: total volume adapted for the repository is 3 500 m3 (the anticipated storage layer 2 meters may be more in rooms No. 1, 4 and 5)<br><br>Barriers: not installed at present.<br><br>There are two factors which are specific for the repository design: (a) high humidity in the underground premises and a substantial flow rate of mine water nearby the disposal chambers, and (b) high concentration of radon decay products (however not generated by the disposed RAW but by natural activity of the host environment) which makes it necessary to maintain a special ventilation regimen. |
| Waste Packages: | The Bratrství repository in Jáchymov is designed to dispose RAW consisting of or contaminated with natural radionuclides of the radium and thorium series. The repository was developed particularly to dispose leaking and disused radioactive sources from healthcare facilities.<br>Radioactive waste is mostly RaSO4 in platinum cases (medical sources), Ra-Be neutron sources, laboratory waste containing natural radionuclides, depleted uranium and natural thorium (mostly as Th(NO3)4.5H2O a ThO2).<br><br>The sources are held in lead containers, placed in concrete and sealed in steel drums. These, together with other wastes, are overpacked into 200 L drums (the inner surfaces of which are painted with asphalt paint) and a 5 cm layer of concrete is poured in to surround the inner drum. The upper face of the concrete layer is again painted with asphalt paint. A general rule for their conditioning in steel drums is given by the requirement that the surface exposure rate must be less than 1 mSvh-1. |
| Facility Operation: | The drums are kept in mine galleries. After the galleries are filled, it is proposed to close them with brick walls and backfill with concrete to resist any changes caused by the pressure of the upper rock formations. However, it is expected that in the future these galleries may be reopened and some waste retrieved from the repository. The radioactivity in the underground water and air are monitored.<br><br>Scheduled end of operation is in 2030; it is anticipated that disposal rooms and access tunnels will be filled with a mixture based on bentonites or cement. Institutional control is anticipated for a period of 300 years after the operation is terminated. |

# Site (Structure) : Bratrstvi

Country: CZECH REPUBLIC Reporting Year: 2013

| | |
|---|---|
| Financing: | Activities are financed from the nuclear account which collects payments by radioactive waste producers; the nuclear account is administered by the Ministry of Finance. |

**Disposal part of facility** **URAO B**

The following shows disposal status for waste classes and SRS.

| Waste Class | Actual | Planned |
|---|---|---|
| TRW | No | No |
| LILW-SL | No | No |
| LILW-LL | Yes | No |
| HLW | No | No |

| | |
|---|---|
| List SRS? | Yes |
| List UMMT? | No |

| | | | |
|---|---|---|---|
| Type: | rock cavern | | |
| Facility is modular? | No | | |
| Capacity existing (m3): | 1200 | Capacity planned (m3): | 1200 |

| | | | |
|---|---|---|---|
| Depth (m): | 30-60 | Host medium: | crystalline rock (gneiss) |

| Phase Name | Start Year | End Year | Estimate |
|---|---|---|---|
| planning and/or concept assessment | 1970 | 0 | False |
| site selection | | 1971 | False |
| design | 1971 | 0 | False |
| construction | 1972 | 1973 | False |
| commissioning | 1974 | 0 | False |
| operation | 1974 | 2030 | False |
| closure | 2030 | 0 | True |

# Site (Structure) : Bratrstvi

Country: CZECH REPUBLIC Reporting Year: 2013

Comment **# 7197: Total volume of repository**

The volume of the facility is about 3500 m3 including transport corridors. Reviews of historical records and documents were done during 1999-2003.

Comment **# 14552: Disposal Facility URAO B**

From the total volume of 3500 m3 of only 1200 m3 can be used for disposal of RAW. At the end of 2004 about 880 m3 of RAW (73.3% from available disposal volume) were disposed

Comment **# 14553: Disposal Facility URAO B**

At the end of 2006 about 955 m3 of RAW (79.6% from available disposal volume) were disposed