

Emergency Preparedness and Response Exercise for medical teams in Andreyev Bay

This exercise was part of one of the three Norwegian Regulatory Support Projects aimed at supporting the improvement of radiation protection in Andreyev Bay. The exercise was the first of its kind ever to take place at such a facility, with international observers, on Russian soil. It gave emergency training for Federal Medical-Biological Agency (FMBA) medical staff in the case of an emergency at SevRAO's site for temporary storage of radioactive waste (RW) and spent nuclear fuel (SNF) in Andreyev Bay. NRPA staff participated as international observers during the exercise.



Transport of a casualty from SevRAO's site to FMBA's regional radiation emergency centre in Snezhnogorsk.

Photo: SevRAO/FMBA

The main objective of the exercise was to train medical staff and practice implementation of emergency procedures. The focus was to improve emergency preparedness and response in case of accidents. Coordination of emergency activities was practised at the same time between the Emergency Medical Radiation Dosimetry Centre

of FMBA and its regional body in Snezhnogorsk, the regional body of State Sanitary and Epidemiological Supervision and the regional FMBA Centre for Hygiene and Epidemiology.

Six months of concerted effort went into planning the exercise after NRPA initiated the project and the results are seen as an important step in

improving the emergency preparedness and response procedures in place at Andreyev Bay.

Participants

- FMBA's Emergency Medical Radiation - Dosimetry Centre (based at the Institute of Biophysics in Moscow) and its regional departments in Snezhnogorsk and Andreyev Bay.
- FMBA's Centre of Hygiene and Epidemiology, territorial department in Snezhnogorsk.
- The Head and personnel from the Zaozersk branch of SevRAO.
- The local hospital in Zaozersk.

Observers

- Zaozersk administration's representative from the Agency of Civil Defence and Emergency Situations.
- The Head Physician at Zaozersk hospital.
- Two NRPA representatives.
- Media representatives – three teams from the local TV and press.



Transport of the casualty from the radiation accident. Documented by a local TV-team. Photo: SevRAO/FMBA

Emergency exercise scenario: 1st emergency

A crane-operator mistake causes a cable and storage cover to be dropped inside one of the SNF dry storage buildings resulting in damage to fuel

assemblies and a release of radioactive substances including ^{90}Sr and ^{137}Cs . The radioactive contamination was local, within a radius of about 50 m. One worker injured his leg and the wound was assumed to be contaminated. All of the workers present started evacuation procedures.



Radiation casualty at SevRAO's site with assumed contaminated leg wound. Photo: SevRAO/FMBA

2nd emergency

The falling cover had also damaged oxygen and acetylene tanks, which then exploded. This resulted in a fire near the crane very soon after the first accident occurred. One worker received a head injury and was unconscious on the ground, while two others had smaller conventional injuries. This second emergency situation made it difficult for the workers to continue evacuating the area.



The regional centre in Snezhnogorsk takes over the casualty. Photo: SevRAO/FMBA

EMERGENCY TRAINING ACTIVITIES

Day 1, 05/06/06 - Andreyev Bay

- Participants practised the use of emergency routes and timing of movement during emergencies at the site.
- Radiological checkpoint management was tested and inspected.
- The level of preparedness of a medical check point was assessed.
- Video records of the exercise were made to be used for training purposes in the future.



*Monitoring for contamination of the wound.
Photo: SevRAO/FMBA*

Day2, 06/06/06, Snezhnogorsk

- Transport conditions for the casualties were analysed from the scene of emergency to Snezhnogorsk.
- Management response of leaders and staff in a medical emergency were assessed.
- Specialised medical teams responsible for emergency treatment were trained.

Day 3, 07/06/06, Andreyev Bay

Notification procedures and the spreading of information about the radiological accident were assessed.

- Actions taken to mitigate the medical-hygienic consequences of the radiation accident by SevRAO personnel were tested.

- Actions to mitigate the medical-hygienic consequences of the radiological accident by FMBA territorial departments were assessed.

Actions taken by FMBA departments

- A radiological survey of the accident site and affected workers.
- Activating an emergency warning at the local general hospital in Zaozersk (30 min driving from the site) and at the local radiation emergency medical centre in Snezhnogorsk (90 min driving from the site).
- Warning the Emergency Medical Radiation - Dosimetry Centre in Moscow.
- Decontamination of the wound and immobilisation of the patient at the permanent medical station in Andreyev Bay (under the regional radiation emergency centre of FMBA in Snezhnogorsk) and organising transport to Snezhnogorsk.
- The use of *indraline* as a radiation pharmaceutical countermeasure.
- Activities undertaken at the FMBA regional radiation emergency centre and other regional FMBA bodies in Snezhnogorsk.



Immobilisation of the patient Photo: SevRAO/FMBA

Training for Andreyev site staff and providing medical first aid

- All personnel were evacuated from areas that were considered hazardous for life and health.
- Site workers knowledge and skills at providing medical first aid were assessed.
- The availability of drugs and first aid materials was assessed.

Conclusions

This was the first time that a medical emergency exercise with international observers has occurred in Russia at the type of nuclear base that exists in Andreyeva Bay. Several Russian mass media teams and television reporters were also present.

Emergency training is all important to increase the level of general and medical preparedness of the emergency teams at SevRAO and FMBA medical institutions.

The experience gained during this emergency training exercise will be used to further improve emergency medical response management procedures.

The main outputs of emergency training and this exercise at SevRAO base in Andreyev Bay are summarised in the following suggestions:

- To improve the existing plans, instructions and manuals devoted to emergency preparedness, as well as the human skills.
- To increase the quality and accessibility of equipment used in emergency response, especially the medical vehicles, equipment to measure radiation parameters and up-to-date medical equipment necessary to give appropriate and timely medical aid to casualties in emergency situations.
- To improve communication capabilities between different actors.

Similar exercises are desirable in the future, as the extensive remediation work at SevRAO sites develops and gathers pace.



Representatives from the organisations participating in the exercise; SevRAO, FMBA bodies and the observers from NRPA.

Photo: SevRAO/FMBA