

Radiological Accident Report

Type of Accident: Unshielded radioactive source

Location: Samutprakarn province (about 10 km. south of Bangkok), Thailand

Nature of Accident:

There were 9 persons admitted to two hospitals for treatments for radiation sickness. Two young men were in serious but stable conditions.

The two young men were unknowingly exposed to acute radiation from an unshielded Co-60 source with estimated 600-700 Ci. Three other persons in the vicinity were also exposed to acute radiation while being contacted with the source container while transporting to a scrap dealer. Serious victims were exposed to the radiation on 1 February 2000 and were diagnosed as commonly caused symptoms until 18 February, 2000 at which time their radiation sickness were recognized.

All the victims are under close observation and care by Ratchaveeti hospital in Bangkok and a provincial hospital of Samutprakarn.

Chronology:

About 12.00 hrs. local time 18 February 2000, Office of Atomic Energy for Peace (OAEP) was alerted by Samutprakarn Hospital of two victims of acute radiation exposure being hospitalized at the hospital. Within 45 minutes (40 kilometers distance), two Health Physicists (HP) from OAEP arrived the hospital and confirmed the symptom to be from high level exposure of radiation.

The unshielded source was found under steel scrap at a scrap dealer shop. At the front of the shop in a small back street. The team found high radiation exposure upto 1 mSv/hr (100 mR/hr). The radiation area was confined at 0.3 mSv/hr (30 mR/hr). Evacuation was not needed. No contamination was found, but very high radiation exposure 1-10 Sv/hr were also measured, by using tele-detectors or extended survey meters at the vicinity of the source location. The high radiation level prevented the team to move close enough to identify the exact location and size of the source. The shop was declared the restricted area.

The next day, 19 February 2000, the source retrieval operation was planned by OAEP. The radioactivity of the source was estimated at 500-1000 Ci of Co-60. The operation started by installing lead wall for radiation shielding of 2-inch thick, 1-meter wide and 2-meter high. Radiation survey was again carried out and radiation area at the warehouse gate needed re-established with 30-meters extension spot lights, two CCTVs were installed. Finally the exact location of the source was found and retrieved into a prepared lead container. The operation was completed within about 8 hours and thirty minutes (16.00-00.30 hours).

Radiation survey was then carried out again around the target area, and it was found normal. The source was then transported to OAEP by a special truck (with more than 10 inch thick). Again the radioactivity and contamination surveys were then carried out through the shop. No other sources and no contamination was found. The source was measured to 750 Ci and stored safely at OAEP.