

RECUPERATION OF URANOUS SALT SAMPLES FOUND IN A LABORATORY IN THE CAPITAL CITY (NIAMEY)

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I - INTRODUCTION

A large quantity of uranous salt samples was found in an unused laboratory in Niamey (Capital City). The National Center of Radiation Protection (Centre National de Radioprotection (CNRP)), in collaboration with the Ministry of Mines and Energy (MM/E), has carried out the recuperation of several hundred kilograms of uranous salt and the decontamination of the area.

II - BACKGROUND

To promote research, exploitation and marketing of mineral and fossil substances, Niger Republic has created in 1976, the National office of Mining Resources (Office National des Ressources Minières (ONAREM)). This office had an analytical laboratory where several types of samples as uranium were analysed.

This laboratory received, during years, a large quantity of uranous salt samples of different weight and quality. Today, only the Petroleum Research Section is on day, the others have closed before 2002 without any particular safety measure.

In 2002, during updating of ionizing radiation sources database, CNRP found that the laboratory held some uranous salt cases. On recommendations of CNRP, these cases were turned back to mining companies COMINAK and SOMAIR. But several other samples were forgotten in the laboratory.

III – HOW THE SAMPLES WERE DISCOVERED

After vandalism, the Ministry of Mines and Energy (MM/E) was informed that uranous samples exist in the laboratory. The CNRP was then touched by the MM/E to take required actions.

A Technical Team of CNRP and MM/E went to the place to primarily evaluate the situation, define a work plan and the tools needed for recuperation and decontamination.

The Team noticed that:

- The majority of samples are in transparent bottled boxes hermetically closed;
- Some of these boxes are grouped by four (04) in small wooden boxes;
- Some bottled boxes was opened and uranous salt was spread at several places.

IV- SAMPLES RECUPERATION

To carry out this operation these means were used:

- Individual Protection Equipments: 4 up-and-down, 4 breathing masks, 4 boots, 4 sets of rubber gloves;
- Labor tools: 3 big wooden cases, 2 barrels, 2 wheelbarrows, 2 shovels and 2 sweeps;
- Radiation monitoring equipments: 01 gamma radiation survey meter RaDos RDS-110; 01 multi-propose radiation monitor ATOMTEX AT1117M equipped with an alpha probe.

The two labours of MM/E and the technicians of CNRP leading the works had each bearded a set of protection equipment and TLD dosimeters.

The operation was conducted as follow:

- Measurements of dose rate at various points;
- Arrangement of stocking place for the waste before it's removal;
- Recovery and fitting out of non damaged sample boxes in wooden boxes;
- Recovery and stocking of opened sample boxes in barrels;
- Decontamination of the area and setting in barrels of the waste.

To make the spread product recovery and decontamination easy without inhalation hazardous, the team has used sand and water. The technique consisted, for each contamination spot, to encircle and cover the uranous powder with sand, to gently sprinkle and stir it up.

Finally the pasty mixture water-Sand-uranous salt is put in barrels. The action was repeated several times and controls made the following day ensure that it was still no contamination in the laboratory.

V- CONCLUSION

At the end of the operation, 1813 uranous salt samples with average mass of 250 grams and two old calibration sources were found. Such quantities of uranous salt powder, hold near the river without control is a real hazard for the public because of probable act of vandalism. The regulatory body might continue in informing and sensitizing workers and public for recovering other orphaned sources and prevent sanitary hazards as the one solved at the ONAREM Laboratory