

URANIUM CORPORATION OF INDIA LIMITED

Status of Environmental Compliance of the Narwapahar Mine as on March 2014

(MoEF No. No. J-11015/13/03-En.2/IA dated 12th November 1987)

- i. *The waste rock dumps will be properly sloped, terraced and planted with appropriate trees/vegetation.*

During initial period of underground mine development, waste rock was transported to the surface. An area of 6.18 ha has been earmarked for waste dump site within mine lease. Out of total, only 1.12 ha area has been used for waste dumping. At present entire waste which is generated during mining activity is being used for void filling in underground. Presently waste rock is not transferred to the dump site. Action has been taken for progressive reclamation of used area of the dump site in phased manner. In first two phases, the waste dump was leveled and terraced with top soil. The steep slope of the dump has been managed less than 28 degree and proper compaction was insured for better stability. Top soil of 30 cm thick has been used to cover the waste. Grass turfing has been done on the slope for protection against soil erosion. Garland drain with settling pond of the capacity 800 m³ and conveyance system has been constructed to capture the runoff water from waste dump area. The collected water is used for industrial purpose as a part of water conservation practice. Greenbelt has been developed around the area with indigenous species. Plantation will continue along the periphery and on top of dump in phase manner. The treated sewage is used for reclamation of waste dump and watering of the plants. Pictorial view of waste dump area is shown below.



Soil covering & Garland drain around the dump



Watering of soil over the slope



Dump yard is terraced



Front view of stabilized slope of waste dump

- ii. *The mine water will be treated for removal of radium prior to its discharge into the nearby water bodies.*

Mine water from Narwapahar mine is not discharged to environment. Mine water from various levels in underground is collected in a sump and then pumped to mine water pond having capacity 45140 m³ at the surface. The de-silted mine water is partially used within mine for industrial purpose and excess @ 900 m³/d is pumped to Jaduguda mill for treatment / reuse. Radium concentration in mine water is monitored by Health Physics Unit of BARC at outlet of the mine pond. The monitoring results of four samples during of October 2013 to March 2015 shows that radium values varies from 261 to 284 mBq/l which is within permissible limits of discharge standards (900 mBq/l).

- iii. *The township for the employees shall not be constructed in the forest area.*

The township for the employees has not been constructed in the forest area

- iv. *The provisions made in the Environmental Management Plan to protect the employees and their families from the radiological effects likely to arise due to this project shall be strictly implemented and regular monitoring of their implementation shall be done.*

Dedicated Health Physics Unit (HPU) of Bhabha Atomic Research Centre (BARC) has been established at Narwapahar Mine which carries out regular radiological monitoring in and around the project. Background radiation levels in air, water and soil is done on periodical basis. Radiological analysis of edibles from nearby area and dose assessment of workers and public is carried out on periodical basis. Facility has been developed at Narwapahar hospital for periodical medical check-up for employees and their dependent. No radiological effects have been observed due to UCIL operations at Narwapahar and elsewhere.

- v. *The various environmental parameters will be regularly monitored during the construction and operational phases of the project.*

A comprehensive periodical monitoring of radiological & environmental parameters within & around the premises is done by the Health Physics Unit of BARC, Government of India and Environmental Engineering Cell of UCIL. Analysis of Gara river water samples (18 Nos.) from 200 m upstream and 100 m downstream with respect to mine and ground water samples (39 nos.) from adjoining area indicated that pH, SO₄²⁻, Cl¹⁻, Hardness, U (Nat) and ²²⁶Ra values are within the prescribed limits of drinking water. Soil analysis report (16 number samples) shows that the values are within the natural variation of background of the area. Ambient air quality in terms of PM₁₀, PM_{2.5}, SO₂, NO_x, Pb and Ni parameters are within the permissible standards as per NAAQS-2009.

- vi. *A periodic report regarding the implementation of various environmental control measures and the monitoring of environmental parameters will be submitted to this department every six months.*

Six monthly status of compliance is being sent to MoEF Regional Office Bhubneshwar, MoEF New Delhi and Jharkhand state Pollution Control Board.