

HIGH CONCENTRATIONS OF URANIUM IN THE WATERS OF VAGALLA AND NEARBY VILLAGES OF CHITTOR (DISTRICT), ANDHRA PRADESH, INDIA – A PRELIMINARY INVESTIGATION

Chebrolu Rama Mohan Rao^{1*}, Demi Raja Reddy², Gudumotu Vijaya Babu³ and Chennuri Durga Rao⁴

1. Geological Survey of India Training Institute, Hyderabad

2. Apollo Hospitals, Jubilee Hills, Hyderabad

3. Geological Survey of India, Chemical Division, SR, Hyderabad

4. Geological Survey of India, NR, Lucknow

**E-mail:crm.gsi@gmail.com*

Abstract

High uranium concentrations ranging up to 2700 ng/mL have been observed in the drinking and well waters near Vagalla village in Chittoor (District), Andhra Pradesh. The study area falls in the eastern part of Dharwar Craton close to the south-western margin of Cuddapah Basin and is occupied by granitic rocks with enclaves of megmatites, amphibolite and metapelites which form the southern extension of the Tsundupalle Schist Belt. The granitic rocks in the area mainly comprise (1) grey hornblende biotite granite gneiss (2) grey biotite granite gneiss and (3) hornblende granite.

Systematic sampling of bore and open well water samples have been carried out to find out the source of high concentrations of uranium in about 99 water samples that have been collected in and around Vagalla and have been analyzed for various constituents utilizing both classical as well as modern instrumental techniques such as ICPMS for major, minor and trace elements. High concentrations of nitrate up to 1810 µg/mL (WHO permissible limit 45µg/mL) and fluoride up to 3 µg/mL (limit 1.5 µg/mL) have been observed along with uranium 2667 ng/mL (limit 20 ng/mL) and strontium 1409 ng/mL (limit 1000ng/ml) and manganese 1211 ng/mL (limit 300 ng/mL) in some of the samples.

Near Lakkireddipalle about 30 km NNW of Vagalla, the Atomic Minerals Division (AMD) has investigated for uranium mineralization. Syenite and pegmatite are known to contain high amount of rare earths and trace element concentrations. The present high anomaly in many elements offers scope for detailed geochemical sampling for both economic and societal points of view as there is some health problems associated with the inhabitants.

Keywords: Uranium, Vagalla, Health effects.