PROPOSAL FOR HELIBORNE TIME DOMAIN ELECTROMAGNETIC (TDEM) AND MAGNETIC SURVEY OVER TARGET MINERAL AREAS H1 AND H2 AS FOLLOW UP SURVEYS RECOMMENDED BY ANALYSIS AEROGEOPHYSICAL DATA OVER OGP BLOCKS 1 & 2 DURING F. S. 2020-2021

REMOTE SENSING AND AERIAL SURVEY

GEOLOGICAL SURVEY OF INDIA

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Heliborne magnetic and Time Domain Electromagnetic (TDEM) survey for target mineral blocks H1 & H2

Objective: To delineate occurrences and the extent of mineral potential deposits over mineral potential zones H1 in parts of Rajasthan & H2 in parts of Madhya Pradesh identified during aerogeophysical surveys over OGP and adjoining area.

Background Information:

The Geological Survey of India (GSI) had commenced a pilot project under NAGMP to undertake airborne magnetic gradiometer and radiometric surveys over areas of obvious geological potential (OGP) and adjoining areas in 2017-18. The program comprised of four blocks comprising survey of about 6.62 lakh Line Km over an area of 1.80 lakh sq Km executed by three project Implementation Agencies (PIAs).

The survey over OGP blocks aimed at generating high quality geophysical database and identifying new mineral potential zones as well as new terrains of enhanced mineral potential over known mining districts based on integrated geological, geophysical and geochemical inputs. Accordingly, prospective potential blocks for different minerals have been identified and recommended for follow-up actions.

Accordingly, Two blocks namely; block-H1 (Topo Sheet Nos. 45D/10, 11, 14 & 45D/15) over parts of Rajasthan in OGP block-1 and Block-H2 (Topo Sheet Nos. 54P/02,03,06, 07, 10 & 54P/11) in OGP block-2 over parts of Madhya Pradesh (as shown in Figure- 2 & 3) have been recommended for Heliborne Time Domain Electromagnetic (TDEM) and magnetic survey at 150 m traverse interval and 1500 m tie-line spacings.

The magnetic anomaly Reduced To Pole (RTP) map over area of Block-H1 shows long-wavelength positive values indicating basic intrusion or basic rock in basement probably due to the presence of "productive" Kumbhalgarh Group. Medium to high anomaly values of Analytic Signal map in the NE part may be due to the presence of ophiolite suite of rocks. The host rock over the area is Garnetiferous chlorite-biotite schists, calc-gneiss, amphibolite and quartzite, intruded by granite, gabbro and lamprophyre dykes. On the basis of multisensor aerogeophysical magnetic gradiometric and spectrometric data collected over OGP Block-1 and integrated with other legacy geophysical, geochemical, geological and mineral occurrences information and study

of similar anomalies with areas of mineral occurrences, the area under H1 has been identified for Zn, Cu & Au.

The area of Block-H2 over parts of Madhya Pradesh shows anomalous NGCM Cu (-Ni) assay values coincident with the lithology of Bijawar Basin. On the basis of this, potential structurally controlled mineralization is demarcated. The host rock over the area is of Bijawar sequence coincident with Karri and Chorhat Formation Sandstones. Radiometric signatures of the area suggest a region of potassic alteration within the Bijawar sequence. The magnetic signature of the Dargawan Formation metabasalt dominates the magnetic relief in the Bijawar Basin. The study of infill stream sediment geochemistry along with airborne electromagnetic surveys has been recommended for copper mineralization over the identified block-H2.

Nature and quantum of work proposed and time schedule:

Nature of work	Total work load envisaged	a) Expected year of completion b) Circulation of final report	Work already completed 2019-20	Work proposed for 2020-21
a) Acquisition of Time Domain Electromagnetic (TDEM) & Radiometric data b) Processing and Interpretation of the data and submission of report	Area-1(coverage) : Line km : 1,450 Area : 195 sq km Area-2 (coverage) : Line km : 5,370 Area : 731 sq km	a) March 2021 b) September 2021	New Item	Area-1 :195 sq km (over parts of Rajasthan) Area-2 :731 sq km (over parts of Madhya Pradesh)

The data acquired by the heliborne TDEM and magnetic survey over the blocks H1 and H2 will be analyzed to delineate the occurrences and extent of mineral potential deposits over the identified area.

The surveys will be executed through outsourcing agencies over a period of one year funded from National Mineral Exploration Trust (NMET).

The deployed geophysicists in the project will monitor at every level of work commencing from data acquisition (by being present on board as security officer as per MoD rule), processing, interpretation, report submission and checking for quality until final reports and deliverables are submitted to GSI for review and acceptance.

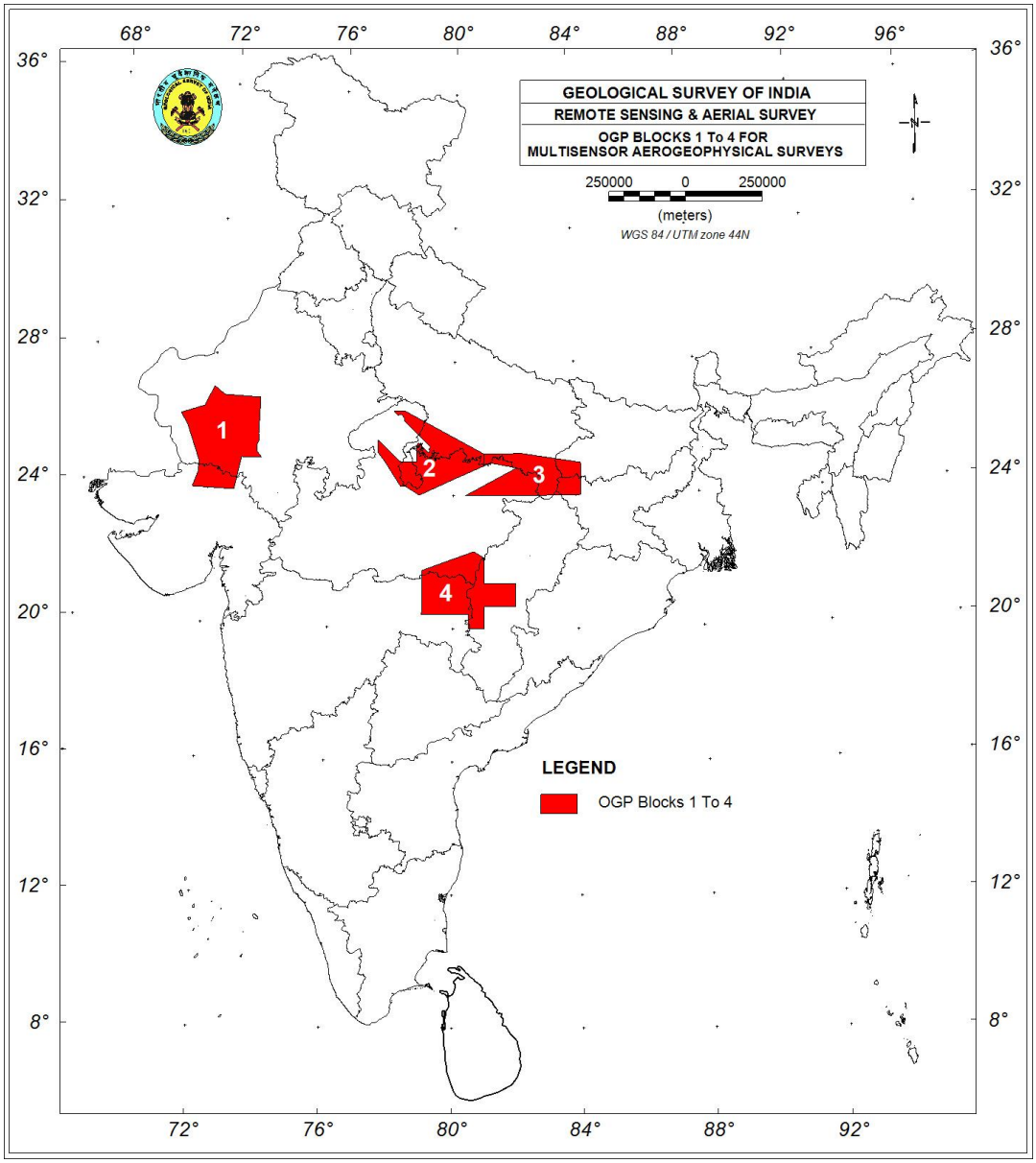

Figure-1: OGP blocks 1 to 4 covered by multisensor aerogeophysical surveys

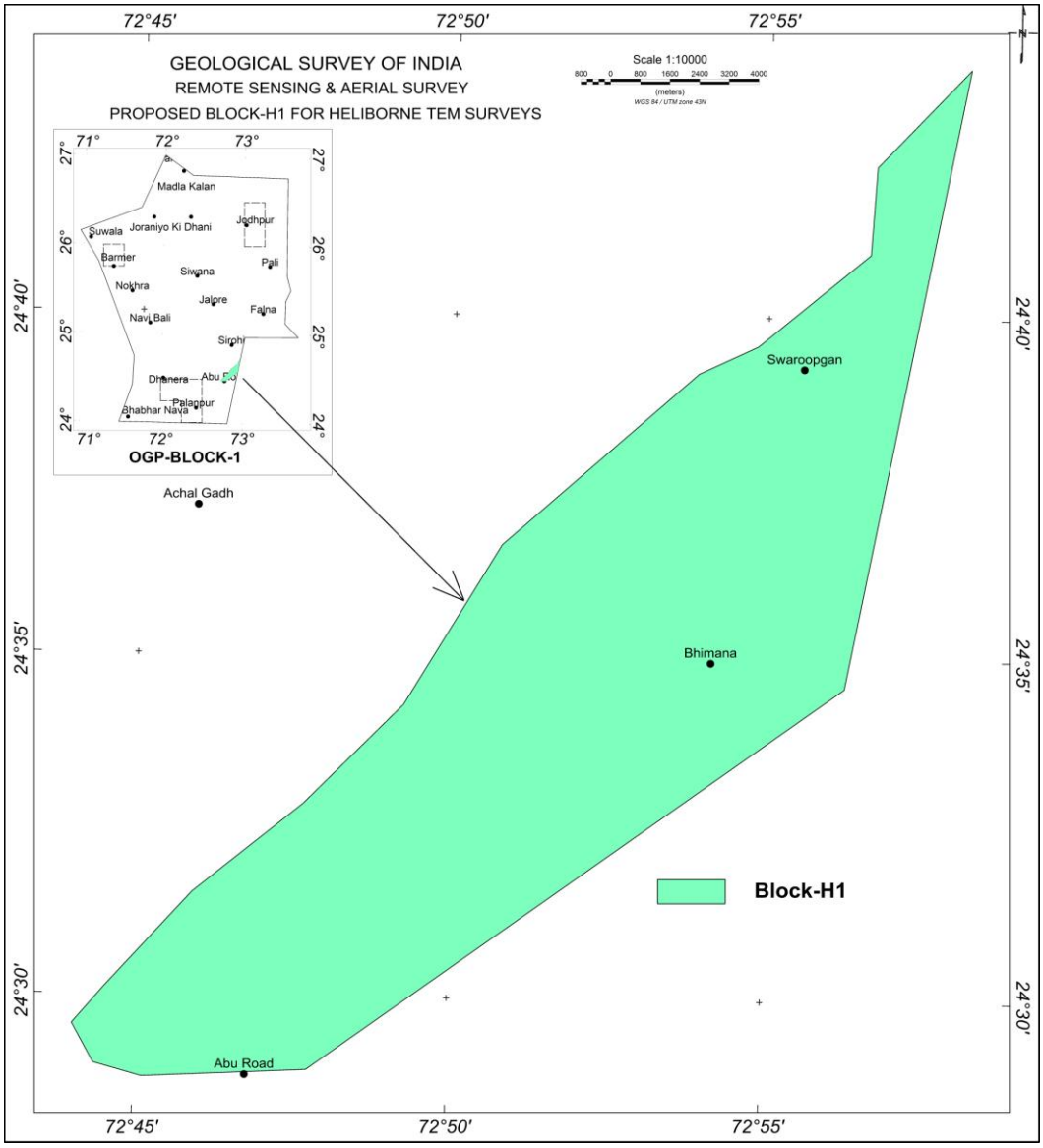

Figure-2: Block-H1 for Heliborne Magnetic & Time Domain Electromagnetic Surveys

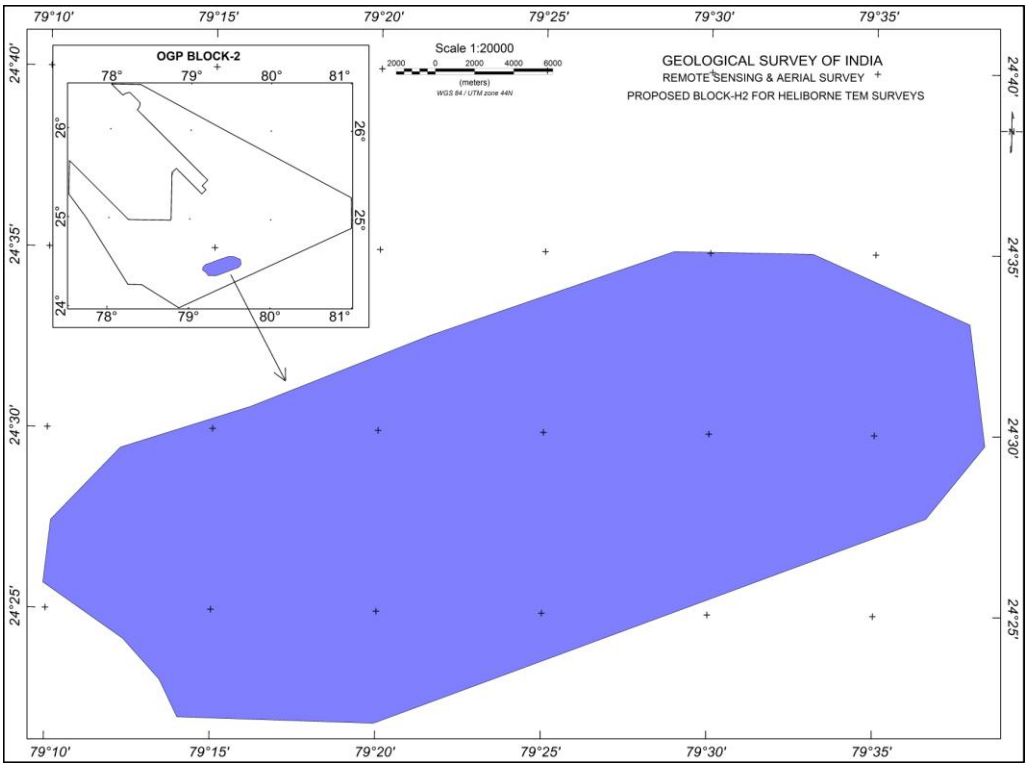

Figure-3: Block-H2 for Heliborne Magnetic & Time Domain Electromagnetic Surveys