Table 1 *Vibrational spectral data and assignments for $Na_2HPO_4.2H_2O$*

Raman cm^{-1}	IR cm^{-1}	Assignment
3450 m	3440 s	ν_{as} Water I
3375 m	3380 w	Water II
3123 m	3120 m	ν_s Water I
3079 m	3080 w	Water II
2910 w	2910 w	(P)O–H stretch
	2440 m	Combinations
	2330 w	
	1710 m	HOH bending
1258 vw	1260 m	Inplane POH bending (βOH)
1143 s	1120 s	PO_3 asy-stretch
1067 s	1055 s	
990 sh	980 sh	PO_3 sym. stretch
952 vs	950 s	
865 s	860 s	P–O(H) stretch
800 vw	810 m	Out of plane POH bending (γ OH)
700 vw	690 w	Rr water
571 s	580 vw	PO_3 asy. bending
544 m	540 w	
	525 w	Rt water
516 s	510 s	PO_3 sym. bending
452 m		Rw water
412 m	385 w	OPO (H) bending
399 s		
350 w		
288 w		Na^+ . . . O stretch?
229 w		
195 w		
156 w		Lattice modes
143 w		
104 w		OH . . . O stretch?
96 w		
79 w		

Rw, Rt, Rr: wagging, twisting and rocking libration.
s—Strong, m—medium, w—weak

As the identification of the external modes is difficult without single crystal data, the bands below 350 cm^{-1} have been assigned to the lattice modes. The proposed assignments are given in table 1.

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RESULTS OF A MAGNETIC STUDY ON A CHROMITE REEF AT TEKURU IN THE EASTERN GHATS BELT

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In geophysical literature there are a large number of reports[1–5] on the exploration for chromites. They include successes, failures and controversies in delineating chromite ore bodies by employing the magnetic method. In this note results of field and laboratory magnetic investigations over a chromite occurrence at Tekuru (17°23′ N, 81°35′ E) are examined. The chromite ore at Tekuru is associated with ultramafic rocks like chromitites and pyroxenites. The country rocks are the khondalite gneisses. The chromite reef, exposed on the crest of Enukonda hill, strikes at N 45° E with a dip of 75° SE. On either side of the crest the reef is covered by thick soil and its width varies around two metres[6].

Vertical magnetic field observations were made, along lines perpendicular to the strike of the chromite reef at intervals of 3 m in general and near the reef at intervals of 1.5 m. Four such parallel traverses, at an interval of 30 m, were made with a torsion magnetometer (Askania Werke make) which has a scale value of 250 γs and a reading accuracy of about 2 γs. The observations were referred to a Base Station for purposes of data reduction and the anomalies are shown plotted in figure 1. The 1800 γ anomaly on profile (1) and -2100 γ anomaly on profile (2) were observed on the outcropping khondalite gneisses. A minimum (-250 γs) on profile (4) coincides with the position of the chromite reef. There is a similar low in the strike direction of the reef on profile (3). These are not the only lows on the profiles. So, the anomaly due to chromite is not conspicuous. In the unoccupied portion of profile (1) the area is characterised by a scarp-like sharp descent. Towards NE of profile (4) the area is marked by an increase in elevation and outcropping country rock gneisses. Seven samples of chromite ore and four samples of the khondalite gneiss were collected for the determination of their NRM

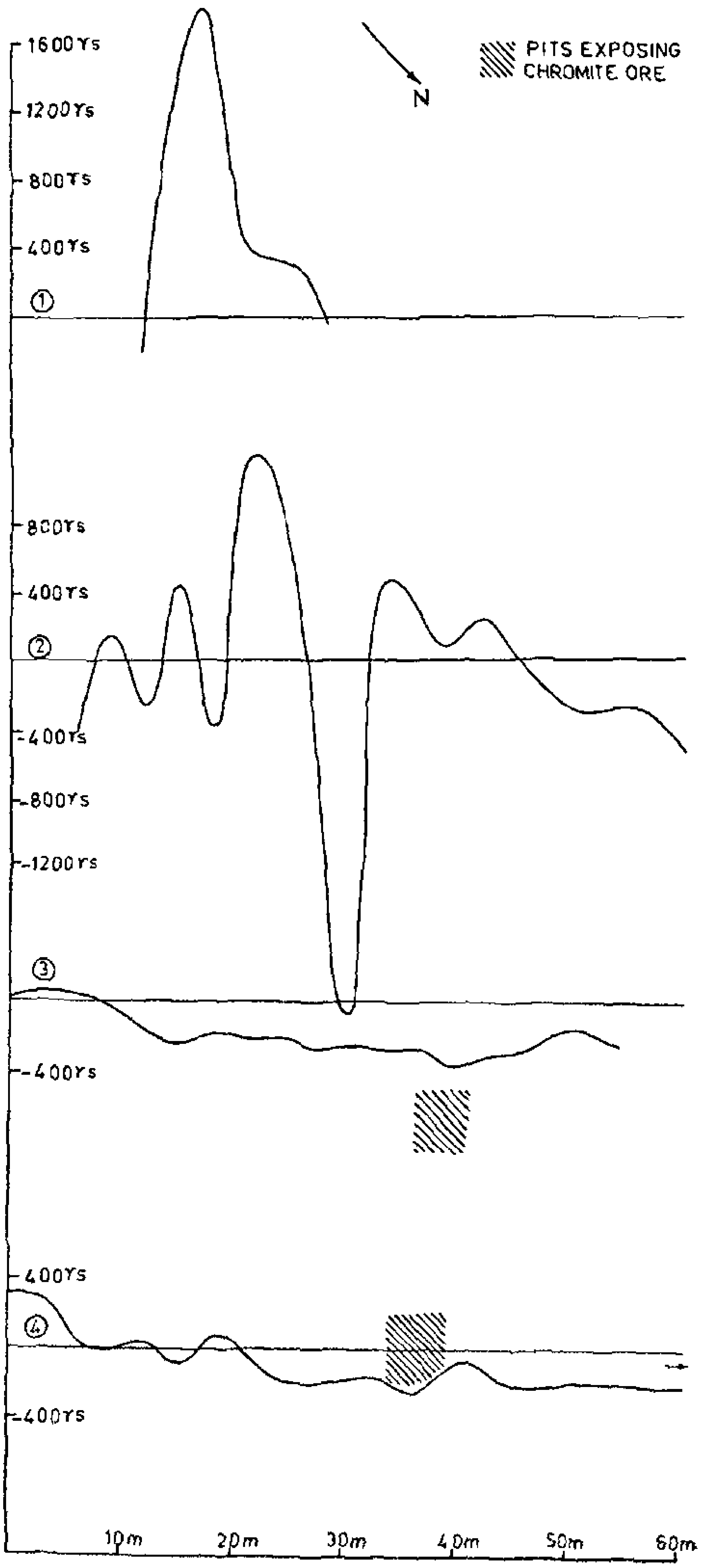

Figure 1. Vertical magnetic anomaly profiles.

intensity, magnetic susceptibility and specific gravity. The measurements are summarised in table 1. The NRM of chromite has a wide range. The NRM and susceptibility values of the khondalite gneiss are on the high side. The specific gravity of chromite samples is consistent and averages to 4.2.

In connection with magnetic anomalies of iron ore it was observed that the magnetic background in the area is high[7]. It could be a manifestation of the strong magnetic properties of the khondalite gneisses. The magnetic properties of the two formations being as they are (table 1), the chromite reef may be expected to produce a low in the magnetic anomaly picture, in the case of 'normal' magnetisation. It was also observed that, in the prevailing rough terrain with country rock outcrops, the minima (being relatively weak) of magnetic anomalies associated with iron-ore are either masked or disturbed[7]. The magnetic anomalies due to chromite-ore are also likely to be affected. So, it appears that the success or otherwise in delineating a chromite reef, by the magnetic method, depends on—apart from the magnetic properties and dimensions of the reef—the prevailing magnetic background and terrain.

Table 1 *Results of NRM (J_n), magnetic susceptibility (K) and specifc gravity (ρ) measurements*

Formation	$J_n \times 10^5$G	$K \times 10^5$G/oe	ρ average	No. of samples
Chromite ore	0.5–57	40–50	4.2	7
Khondalite gneiss	330–400	200–290	–	4

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