

3. Proposal For Preliminary Exploration (G3) for Nickel (Ni), Chromium (Cr) & Rare Metals (RM) in Vemula Block (3.80 sqkm), YSR (Kadapa) District, Andhra Pradesh

**[Implementing Agency: Mining Tech Consultancy Services Limited (MTCS),
Ahmedabad]**

Features	Details
Block ID	MTCS/NMET-004/2025/AP/Vemula
Exploration Agency	Mining Tech Consultancy Services Limited (MTCS), Ahmedabad
Previous Exploration Agency	Geological Survey of India
Previous Stage Geological Report	GSI carried out Field Season Programs during 2015-16 (NGCM) and 2019-21 (G4 level exploration for Nickel & Base Metals) in this area.
Commodity	Nickel (Ni), Chromium (Cr) & Rare Metals (RM)
Mineral Belt	-
Completion Period with entire Time schedule and cost	12 months
Objectives	<p>Objectives of the present G3 level exploration are as follows:</p> <ol style="list-style-type: none"> 9. To carry out detailed Geological mapping on 1:2000 scale and to collect chip/channel samples for analysis of Nickel, Chromium & Rare Metals. 10. To carry out integrated geophysical surveys: Ground Magnetic, Gravity & Induced polarization (I.P.) to delineate potential mineralized zone areas. 11. To carry out pitting & trenching in the anomalous zones. 12. To take up exploratory drilling at 400m spacing interval in the potential mineralized zones. 13. To conduct mineralogy & petrography study of rocks for identification of host rock containing Nickel & other target elements. 14. To carry out geochronology study in terms of isotope analysis for understanding the formation, origin & evolution of the deposit and mineralization timing. 15. To estimate ore resources at G3 Level as per UNFC norms and Minerals (Evidence of Mineral Contents) Rules 2015. 16. Preparation of geological report in compliance with G3 level as per MEMC Rules and suggestions for follow up work to upgrade the project, if deemed necessary.

	Whether the work will be carried out by the proposed agency or through outsourcing and details thereof. Components to be outsourced and name of the outsource agency	The work will be carried out by the exploration agency (Mining Tech Consultancy Services Limited).																										
	Name/ Number of Geoscientists	Four (Geologist: 3, Geophysicist: 1). Names will be provided prior to filed work.																										
	Expected Field days (Geology) Geological Party Days	Geology – 140 days Geophysics – 80 days																										
1.	Location																											
	Latitude and Longitude	<table><tr><th>Boundary Points</th><th>Latitude</th><th>Longitude</th></tr><tr><td>A</td><td>14°23'26.178"N</td><td>78°15'57.195" E</td></tr><tr><td>B</td><td>14°22'15.417"N</td><td>78°18'39.919" E</td></tr><tr><td>C</td><td>14°22'01.693"N</td><td>78°18'33.934" E</td></tr><tr><td>D</td><td>14°22'10.057"N</td><td>78°17'52.613" E</td></tr><tr><td>E</td><td>14°22'27.049"N</td><td>78°17'00.065" E</td></tr><tr><td>F</td><td>14°22'49.769"N</td><td>78°16'27.795" E</td></tr><tr><td>G</td><td>14°23'09.800"N</td><td>78°15'47.100" E</td></tr></table>			Boundary Points	Latitude	Longitude	A	14°23'26.178"N	78°15'57.195" E	B	14°22'15.417"N	78°18'39.919" E	C	14°22'01.693"N	78°18'33.934" E	D	14°22'10.057"N	78°17'52.613" E	E	14°22'27.049"N	78°17'00.065" E	F	14°22'49.769"N	78°16'27.795" E	G	14°23'09.800"N	78°15'47.100" E
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	Villages	Vemula, Velpula																										
	Tehsil/ Taluk	Pulivendula																										
	District	YSR (Kadapa)																										
	State	Andhra Pradesh																										
2.	Area (hectares/ square kilometers)																											
	Block Area	380 Ha. / 3.80 sqkm																										
	Forest Area	Not Available																										
	Government Land Area	Not Available																										
	Private Land Area	Not Available																										
3.	Accessibility																											
	Nearest Rail Head	Kadapa (60 km)																										
	Road	Jamalpalle-Kampalle Raod																										
	Airport	Bengaluru (180 km)																										
4.	Hydrography																											
	Local Surface Drainage Pattern (Channels) / Rivers/ Streams	Few big & small streams drain in this area and show coarse-dendritic drainage pattern. The Papaghni River flows through this region.																										
5.	Climate																											
	Mean Annual Rainfall	1200 mm																										
	Temperatures (December) (Minimum)	Minimum – 16°C																										

	Temperatures (June) (Maximum)	Maximum – 47°C
6.	Topography	
	Toposheet Number	57 J/7
	Morphology of the Area	The topography of the area forms a NW-SE trending flat topped ridge having minimum & maximum elevation of 275m and 306m respectively.
7	Availability of baseline geosciences data	
	Geological Map (1:50K/ 25K)	1:12,500 scale map available
	Geochemical Map	Available
	Geophysical Map	Regional GP maps available
8.	Justification for taking up G-3 or G-2 Stage mineral Exploration	<p>12. Geologically the rocks of Vempalle, Pulivendla & Tadapatri Formations belonging to Lower Cuddapah are well developed in the Papaghni sub-basin located in parts YSR (Kadapa) district in Andhra Pradesh (Rao, 1967).</p> <p>13. Mineral potential in this area is observed in the form of limestone/dolomites, bedded & vein-type barytes, asbestos & steatites as well as the occurrences of base metal, uranium and abundant building & ornamental stones.</p> <p>14. As per previous studies undertaken by GSI during field season programs (FSP 2015-16 and 2019-21):</p> <ul style="list-style-type: none"> ➤ Base metal mineralization has been reported in Gabbro of Tadapatri Formation and within Basalts of Vempalle formation. ➤ Alteration of plagioclase to saussurite is observed in gabbro and pyroxene to amphibole is seen in basalt indicating hydrothermal solution as a possible source of mineralization. ➤ TAS diagram shows that the samples fall in basalt, basaltic andesite & andesite field on the sub-alkaline/tholeiitic region and mostly of basic to intermediate composition whereas in AFM diagram the samples lie within tholeiite to calc-alkaline series with most of the samples belong to calc-alkaline series. ➤ Gravity and Magnetic surveys indicate that this area is rich in ferromagnesian minerals; but these surveys have been done on a regional scale. ➤ Anomalous values of Nickel & Chromium have been reported near Vemula with the occurrence of other base metal elements.

		<ul style="list-style-type: none"> ✓ The range of reported Ni concentration in Bedrock Samples: 430 to 1000ppm & PCS samples: 88 to 965.8 ppm ✓ The range of reported Cr concentration in Bedrock Samples: 440 to 800ppm & PCS samples: 122.1 to 2959.24ppm. ➤ Besides, abnormal values are observed for few other Critical Elements like Vanadium (upto 400 ppm), Scandium (upto 30 ppm) etc. <p>15. In view of the above inferences & findings, the area near Vemula seems to have potential for Nickel & other base metals. So, MTCS has prepared an initial proposal for conducting Preliminary Exploration (G3 level) for Nickel, Chromium & Rare Metals within 4.00 sqkm area located on the west of Vemula in YSR (Kadapa) district, Andhra Pradesh.</p> <p>16. This proposal was discussed in the 74th Technical-cum-Cost Committee-I (TCC-I) meeting held on 20th & 21st February 2025 in which the committee accorded in-principle approval and advised to collect samples from the block & to submit the DPR. The committee has also advised to include Platinum Group Elements (PGE) in the analysis package.</p> <p>As per the advice of the committee, MTCS has visited the site & collected samples for chemical analysis. During field visit, it has been observed that a new highway is under construction at the western boundary of this block.</p> <p>Based on this observation, MTCS has slightly modified the block discarding the area comes under the new highway; the revised block area is 3.80 sqkm for which MTCS has prepared this detailed proposal for conducting Preliminary Exploration (G3 level) for Nickel (Ni), Chromium (Cr) & Rare Metals (RM).</p> <p>Recommendation TCC <i>The committee recommends the proposal for approval of EC.</i></p>
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