

4. Proposal For General Exploration (G-2 Stage) For Graphite And Associated Minerals In Nagapuzha-Vadakod Block, District- Ernakulam, Kerala

[Implementing Agency- MECL]

Features	Details
Block ID	NAGAPUZHA-VADAKOD BLOCK
Exploration Agency	Mineral Exploration and Consultancy Limited (MECL)
Commodity	Graphite and Associated Minerals
Mineral Belt	The proposed exploration block lies in the Kerala Granulite Belt. Graphite is found in association with the Khondalite Group of rocks.
Completion Period with entire Time schedule and cost	12 Months & 4.03Cr
Objectives	<p>The present exploration program (G2) has been formulated on the basis of the outcomes of previous work and recent field traverses to fulfill the following objectives:</p> <p>Geological mapping on 1:2000 scale for demarcation of Graphite and Associated Minerals bearing horizons with the structural features to identify the surface manifestations along with the lateral and vertical disposition of the mineralized zones.</p> <p>Topographical Contouring on 1:2000 scale, by means of surface contouring at 2 m interval.</p> <p>To assess the quality of the and Associated Minerals bearing horizons surficial by collecting surface samples (bedrock, channel and Trench) which will further shape up the future course of exploration.</p> <p>Trenching will be carried out at suitable interval in the anomalous zone marked by geophysical survey and earlier exploration results to establish the continuity of the mineralization along strike direction, which is covered by soil.</p> <p>After the positive outcomes of the above activities drilling will be carried out to intersect the graphite mineralization at vertical depth with 100m or closer strike interval.</p> <p>Assessment of quality and quantity of the resources (332) as per UNFC norms & Minerals (Evidence of Mineral Contents) Rules- 2015.</p>

	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 outsourcing agency	Work will be carried out by the proposed agency.		
	Name/Number of Geoscientists	Nos. of Geoscientists: 2		
	Expected Field days (Geology) Geological Party Days	Geologist Party days: 150 (At field) & 45 at HQ Survey Party days: 30 days		
1.	Location			
	Latitude and Longitude	Cardinal Points	Latitude	Longitude
		A	9°57'42.95" "	76°39'31.75"
		B	9°57'55.91" "	76°39'47.59"
		C	9°57'18.47" "	76°40'31.98"
		D	9°57'12.28" "	76°40'52.86"
		E	9°56'28.25" "	76°40'52.79"
		F	9°56'27.42" "	76°40'24.10"
		G	9°56'58.78" "	76°40'19.06"
	Villages	Kalloorkkad, Manjalloor villages		
	Tehsil/Taluk	Muvattupuzha		
	District	Ernakulam		
	State	Kerala		
2.	Area (hectares/square kilometers)			
	Block Area	2.60 sq.km		
	Forest Area	The block area is partially under Forest Area and partially Non-Forest area.		

	GovernmentLandArea	Data not available
	PrivateLandArea	Data not available
3.	Accessibility	
	NearestRailHead	Nearest railway station to the study area is Piravam Road at about 28 km.
	Road	The most direct route to the study area is via the Muvattupuzha - Thodupuzha Road (SH 8). This state highway connects Muvattupuzha to Thodupuzha and passes near Kalloorkkad..
	Airport	The nearest airport is Kochin International Airport (50 kms).
4.	Hydrography	
	LocalSurfaceDrainagePattern(Channels)/ Rivers/Streams	The region exhibits a dendritic drainage pattern. The Thodupuzha River and the Kaliyar River are the two major rivers near the block area.
5.	Climate	
	MeanAnnualRainfall	Ernakulam district receives an average annual rainfall of 3,000 mm and experiences temperatures ranging from 20°C to 33°C throughout the year.
	Temperatures(December)(Minimum)	
	Temperatures(June)(Maximum)	
6.	Topography	
	ToposheetNumber	Survey of India Toposheet no. 58C/09
	MorphologyoftheArea	The block area forms planar and gently undulating terrain.
7	Availability of baseline geosciences data	
	GeologicalMap(1:50K/25K)	Available at 1:50,000 scale in Bhukosh/NGDR
	GeochemicalMap	Available
	GeophysicalMap	Not Available
8.	JustificationfortakingupG-3orG-2Stage mineralExploration	India is experiencing a surge in demand for graphite due to its critical role in electric vehicle (EV) batteries, lithium-ion cells, and renewable energy storage. India imports over 90% of its REE requirements from China and graphite for lithium-ion batteries, making domestic exploration vital for self-sufficiency.

		<p>Graphite is classified as critical minerals essential for India's energy security, defense, and high-tech industries.</p> <p>On 10th January 2025, the Secretary (Mines), MoM, GOI chaired an auction review meeting for Kerala State, directing MECL, GSI, and DMG Kerala to assess graphite exploration potential at Kalloorkad Graphite Mine (M/s Thomson Graphite Mines & Crucible Works). A joint field visit was conducted on 10th–11th February 2025 by officers from GSI, DMG Kerala, and MECL.</p> <p>The Kalloorkad Graphite Mine (M/s Thomson Graphite Mines & Crucible Works) in Kalloorkad Village, Kerala spans 1.25 Ha and was leased from 2006 to 2026. With 15,793 tonnes of graphite reserves (as of 2017), mining has been suspended since 2017, making it a non-operational open-cast mine. The pit has two benches (~4.5m high), with graphite-bearing laterite and kaolinized clay. Graphite schist (2.5m wide) is exposed at the eastern pit bottom, while thin graphite bands (0.5m wide) trend NNW-SSE on the western bench. Field studies suggest mineralization extends beyond the lease area, indicating further exploration potential.</p> <p>The proposed block has been delineated based on previous exploration by GSI, which identified an extension of the graphite band associated with M/s Thomson Graphite Mines & Crucible Works. Traces of graphite within lateritic material were observed in borewell dug-out samples in Nagapuzha Village, approximately 2 km southeast of the existing mines, following the general NNW-SSE trend of graphite mineralization. Based on these findings, MECL has proposed the Nagapuzha-Vadakod Block for further exploration.</p> <p>During the Field Season years 1969, 1973-76, 1976-1979, 1977, 1978, and 1979, GSI conducted graphite exploration in the Perungala Area, Thodupuzha Belt, Vadakod, and Nirampuzha regions of Ernakulam district.</p> <p>Hence, General Exploration (G-2) has been proposed to cover the explored area and its strike extension to establish the vertical and lateral continuity of and Associated Minerals. This will enhance resource estimation and make the block suitable for auction.</p>
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